DOCUMENT RESUME

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INSTRUCTIONAL CLOSED CIRCUIT TELEVISION. INSTALLATION. OPERATION. POTENTIAL. STUDY REPORT NUMBER 1(INCLUDING PICTORIAL REPORT NUMBER 1), 1957-1958.

San Jose State Coll., Calif.

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Identifiers- San Jose State College

In the academic year 1957-1958, San Jose State College used closed-circuit instructional television for direct teaching and for teacher education courses involving observation of primary and secondary school classrooms in the area. Direct teaching by television was used for demonstrations in two engineering courses, for teaching presentations in Health and Hygiene Department courses, and for special presentations in several other courses. Television observation techniques were used in education courses which normally required school visitations by the students, and in courses such as Child Psychology and Child Growth and Development. The system consisted of a central station and 27 receiver stations, with cables to the schools to be observed. Tentative conclusions and recommendations indicate that with faculty familiarization and practice and with guidance of students by the instructors, television can be an effective supplement to college instruction. A photographic presentation of equipment is included. (BB)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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TELEVISION PROJECT REPORT

FROM

SAN JOSE STATE COLLEGE

SAN JOSE, CALIFORNIA

ED021483
EM 006 706

INSTRUCTIONAL CLOSED CIRCUIT TELEVISION

INSTALLATION

OPERATION

POTENTIAL

STUDY REPORT NUMBER 1

(INCLUDING PICTORIAL REPORT NUMBER 1)

1957-1958.

SAN JOSE STATE COLLEGE
San Jose 14, California

MEMORANDUM

TO: John T. Wahlquist, President

VIA: Fred F. Harcleroad, Dean of the College

FROM: Richard B. Lewis, Head, Division of Audio-Visual Services

SUBJECT: Instructional Television Project Reports, 1957-1958; Forwarded

ENCLOSURES: (1) STUDY REPORT NUMBER 1
(2) PICTORIAL REPORT NUMBER 1

1. Enclosure (1) discusses in detail the work on the ITV Project during 1957-1958, and is illustrated by bound-in pages from Enclosure (2). Enclosure (2) is prepared separately to permit circulation of the technical, organizational, and operational aspects of the Project about which we receive many questions.

2. The Study Report makes clear that the first year of the Project has been devoted to procurement and installation of instructional television facilities, and to a relatively brief period of instructional planning and operation in accordance with the objectives of the Project. However, the considerable data gathered show the problems and requirements of initiating a program, numerous trends, and implications for future efforts.

3. Full recognition and appreciation must be given to the agencies of the State, to the Departments of the College, to the San Jose Unified School District, and to the many commercial organizations that have participated in the intense work of planning, installing, and operating the current phase of the Instructional Television Project; credit details are recorded in full in the Study Report. Special appreciation is extended to KIN TEL, a Division of Cohu Electronics, San Diego, for assistance in presenting the Pictorial Report and printed portions of the Study Report.

4. The Staff of the Division of Audio-Visual Services prepared the reports; the Study Report has been read by members of the College Instructional Television Evaluation Committee and the Departmental Coordinators for the Project. On September 25, 1958, the reports will be presented to the Committee on Instructional Television in the State Colleges.

September 24, 1958

THE INSTRUCTIONAL TELEVISION
STUDY REPORT NUMBER 1

has been approved by the

San Jose State College
Instructional Television
Evaluation Committee

for 1957-1958:

James H. Anderson,
Engineering

M. B. Miller,
Elementary Education

Clay S. Andrews,
Elementary Education

Edward W. Minium,
Psychology

James J. Asher,
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Catherine M. Wallace,
Health and Hygiene

John A. Barr,
Secondary Education

Gene G. Wallar,
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Richard B. Lewis,
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John W. Westfall,
Audio-Visual Services (ITV)

Gaither Lee Martin,
Audio-Visual Services (ITV)

John C. Woodward,
Secondary Education

TABLE OF CONTENTS

TENTATIVE CONCLUSIONS AND RECOMMENDATIONS ix

CHAPTER I. FRAMEWORK AND FACILITIES

Section 1- Introduction and Historical Development 1

Section 2- Organization and Personnel 10

Section 3- Facilities for Instructional Television 20

CHAPTER II. TELEVISION OBSERVATION PROJECT

Introduction 31

Section 1- Elementary School Curriculum and Observation 36

Section 2- The Learner 63

Section 3- Child Growth and Development
Adolescent Health Problems 77

Section 4- Child Psychology and Educational Psychology 85

CHAPTER III. DIRECT TEACHING BY TELEVISION

Section 1- Engineering 25 95

Section 2- Engineering 1 117

Section 3- Health and Hygiene 125

Section 4- Special Instructional Presentations 137

CHAPTER IV. PLANS FOR 1958-1959 147

BIBLIOGRAPHY 151

APPENDIX - (See page vii for Appendix Table of Contents)

NOTE: Picture Sections Follow Pages 30, 94, and 136.
Opening and Closing Sections of PICTORIAL REPORT NUMBER 1 are Included at the End of the Appendix.

TABLE OF TABLES

		PAGE
I -	TV OBSERVATION SCHEDULE - Horace Mann Elementary School	35
II -	TV OBSERVATION SCHEDULE - Selma Olinder Elementary School	35
III -	TV OBSERVATION SCHEDULE - Elementary Education College	41
IV -	PRE- AND POST-TEST RESULTS - Elementary Education 104	48a
V -	PRE- AND POST-TEST RESULTS - Secondary Education 150	70a
VI -	PRE- AND POST-TEST RESULTS - Health and Hygiene 101-102	78a
VII -	PRE- AND POST-TEST RESULTS - Child Psychology 102	88a
VIII -	PRE- AND POST-TEST RESULTS - Educational Psychology 150	90a
IX -	TIME/COST ANALYSIS - Engineering 25	100a
X -	RATING SCALE - Engineering 25	101
XI -	FINAL QUESTIONNAIRE - Engineering 25	103
XII -	TIME/COST ANALYSIS - Engineering 1	118a
XIII -	RATING SCALE - Engineering 1	120
XIV -	TIME/COST ANALYSIS - Health and Hygiene	128a

TABLE OF CHARTS

	Organization for ITV at San Jose State College	10a
I -	Composite of Education 104 Instructors' Reports	42a
II -	Composite of Education 150 Instructors' Reports	68a

APPENDIX - TABLE OF CONTENTS

		APPENDIX PAGES
A.	HYPOTHESES (State)	A-1
B.	AREAS OF AGREEMENT AND CONCERN (State)	A-5
C.	ITV BUDGET JUSTIFICATION (State)	A-11
D.	BUDGET AND COST, SAN JOSE ITV INSTALLATION	A-17
E.	COMPLETE VIEWING SCHEDULES - OBSERVATION PROJECT	A-21
F.	CALENDAR OF MEETINGS (College-Public Schools)	A-27
G.	OBSERVATION PROJECT MATERIALS PROVIDED BY PUBLIC SCHOOLS FOR COLLEGE PERSONNEL (SAMPLE)	A-37
H.	LETTER OF JUSTIFICATION FOR OBSERVATION PROJECT (Dr. Lowell G. Keith, Head, Elementary Education)	A-45
I.	LETTER OF JUSTIFICATION FOR OBSERVATION PROJECT (Dr. G. W. Ford, Head, Secondary Education)	A-47
J.	DESCRIPTIVE SURVEY - ITV PROJECT	A-49
K.	DIARY - DIRECTIONS FOR USE, ITV PROJECT	A-51
L.	CALENDAR - HISTORICAL, ITV PROJECT	A-55
M.	RATING BLANKS - PRE- AND POST-TESTS, OBSERVATION	A-59
N.	SUPPLEMENT TO THE APPENDIX - COVER SHEET AND TABLE OF CONTENTS (The Supplement is a Separate Document Available for Reference.)	A-63

Opening and Closing Sections of
PICTORIAL REPORT NUMBER 1
Follow Appendix N

TENTATIVE CONCLUSIONS AND RECOMMENDATIONS

Observation by Television--Teacher Education

Tentative Conclusions:

During the initial orientation period of the television observation project no attempt was made to measure the amount of learning taking place; the data in the study provides a rough indication only of the attitudes of faculty and students participating in the project.

1. Those faculty members who used television very little retained their original attitude, whether positive or negative, throughout the program. Those instructors who used television more extensively tended to become more and more favorable as the program progressed.

2. The attitude of the class reflected the attitude of its instructor.

3. The students agreed that observation when undirected by an instructor was of little value, but observation guided by an instructor had meaning and value.

4. Two-hour periods of unrelieved television observation was too long for effective concentration and interest.

Tentative Recommendations:

1. Basic to the effective utilization of any machine is a knowledge of its limitations and capabilities. The faculty should be encouraged to become familiar with television as an instructional medium, and this could perhaps, best be done through orientation experiences planned for them. The faculty should have experience in directing cameras, and by using the equipment before they are required to direct observation for a group of students.

2. Students need constant guidance. The instructor must utilize methods of fixing the attention on the significant classroom events being observed.

3. Shorter periods of concentrated observation are indicated. The observation experience may be supplemented with short quizzes or discussion sessions, or with alternate observation and discussion.

Direct Teaching by Television

Tentative Conclusions:

As a result of data obtained from instructors utilizing

television for direct teaching, the following tentative conclusions are drawn:

1. Television is an effective adjunct to instruction.

2. Instructors make a rapid transition from classroom teaching and methods to television teaching.

3. Instructors must have practice in teaching by television before gains can be realized either in instruction or in economy of instructor time.

4. Successful utilization of the television medium for instruction is based on the following provisions:

a) Careful selection and preparation of course content.

b) Charts, graphs, diagrams, and written materials should be prepared before the television lesson.

c) Constant revision and improvement of lesson materials is as important as maintaining an awareness of the visual impact of the television medium.

d) Practice in pacing the television presentation is necessary.

Tentative Recommendations:

1. Televised lessons should be so well prepared they can be repeated as necessary with teacher preparation devoted only to bringing the lesson up-to-date as the occasion warrants.

2. Instructors need orientation to the television medium as a teaching aid and should practice pacing their lessons for maximum effectiveness.

3. Presenting televised lessons to large groups of students may be an effective method of utilizing and saving faculty time and energy, and will reduce the per-student cost of instruction.

Personnel and Other Costs of ITV

Tentative Conclusions:

Only initial efforts toward studies of personnel utilization and other costs have been undertaken. However, complete time and personnel records have been maintained on all presentations and operations. Data shows marked reductions in cost of television teaching when direct teaching lessons are repeated. For example, including prorated costs of equipment and facilities, graphic-photographic time and materials, costs of set-up, rehearsal, teacher preparation, and technical and production staff time, the cost of a first presentation in Engineering 1 was $856.54; the first repeat presentation cost $75.62; the

second repeat presentation cost $48.50. Per-student costs, of course, are markedly affected by the size of the viewing group which, with television may be few or many depending upon a multitude of factors including scheduling problems, courses selected for television applications, and the type of telecasting undertaken.

T e n t a t i v e R e c o m m e n d a t i o n s :

In all uses of television for college instruction, accurate and detailed studies of costs are essential. Many special study designs will be warranted and must be developed.

ADDITIONAL COMMENTS

The following statements are opinions of ITV project staff:

1. There are many potential applications of television in college instruction, ranging from simple use of one inexpensive camera as a resource tool to full scale broadcasting of complete courses for college credit. A number of years will pass before extensive studies and demonstrations of all potentials of instructional television can be completed. It seems imperative that as many possible facets of the medium be explored as soon as possible, otherwise if and when television is considered absolutely necessary to implement college instruction, lack of experience and training may cause personnel to fail in their responsibilities to use the medium effectively for teaching; in such cases the medium might be blamed for failures--even in the face of evidence from other sources to the contrary. Experience n o w is necessary for success in the future.

2. It is clear that each college must undertake exploration of ITV because orientation is essential for faculty and students to permit them to become competent in utilizing the medium. Each institution will have to "learn by doing" in order that the best applications of television in each local situation can be explored. Therefore, while studies by others can be helpful to personnel in any institution, personal experience will be essential before regular television utilization will be both accepted and well done.

3. The weight of technical and organizational problems to start the project at San Jose State College, and the extent of faculty, staff, and student participation, and the first results obtained, suggest the complexity of the problem of starting a television program in a college. Therefore, any college must recognize that a period of orientation will be absolutely necessary before relatively smooth operation of a program can be assured.

4. Several years of preliminary work with closed circuit television placed San Jose State College in a favorable position to move rapidly, and with considerable assurance, through planning and executing budgeting-purchasing-installing aspects of

the program. However, starting the use of television eight months after budget approval has proved to be a "crash" program of exceptional dimensions. All agencies and personnel of the State with responsibilities for implementing the project were placed under undue pressures of time. Further, the mechanics of the technical aspects of the project were of such scope that attention was automatically diverted from the most important aspects of planning, utilization, and evaluation, and orientation of those ultimately using the medium. This selective negligence should be avoided. Only by activities beyond the call of normal duty by State personnel, the public school people cooperating, and the commercial representatives assisting in planning for the equipment and installations for the program were all deadlines met. Thus, the time-scheme for this project should not be considered either appropriate or normal.

C H A P T E R I

F R A M E W O R K A N D F A C I L I T I E S

SECTION 1

INTRODUCTION AND HISTORICAL DEVELOPMENT

Selected as a pilot study institution for the California State College System, San Jose State College has undertaken a program of continuing exploration of closed circuit television (CCTV) for college instruction. Activities for the academic year 1957-1958 are included in this report, as are a brief review of the background of the program and plans for the coming year.

Readers are invited to consider factors that affect the progress and status of the program and the scope and content of this report.

The College was selected to undertake the program to explore the operational and educational feasibility of CCTV because of a background of experience starting before 1954. During 1955-1956, using industrial type television equipment, several exploratory studies (primarily in teacher education) were undertaken, and numerous demonstrations were presented and reported. (See Bibliography.)

Extensive planning by the College, and by the Committee on Instructional Television for the State College System (See Bibliography), resulted in a request to the Legislature by the State Department of Education to augment the San Jose State College Budget for the fiscal year 1957 to finance the installation and operation of an Instructional television project. The budget was approved, and a two year period for operation was indicated by the Committee as the first reporting period.

Subsequently, because of the strong interest of other state colleges in initiating CCTV projects, San Jose was requested to prepare an interim report after the first year of operation. This report was to provide whatever data possible to guide considerations of requests by other colleges for television equipment for developmental projects.

Further, the original responsibility of the College was primarily to explore television as it might contribute to the effectiveness of the teacher education program, specifically for observation in the public schools. At the meeting in December 1956 of the Committee on Instructional Television, the College was given additional responsibility for exploration to the greatest degree possible, of CCTV for direct teaching and for resource use,

especially in the fields of engineering and the sciences. This assignment was further defined and emphasized at a meeting of College and State Department personnel on Nov. 5, 1957.

Staff and budget requirements had been originally designed to undertake the Teacher Education Project, and the project limits were then limited to determining the technical and operational feasibility of television; extensive research was not indicated. Later, there evolved an expanding list of information desired from the project. The additional activities and research aspects of the project, therefore, were undertaken with no additional staff and with no special funds for research except for $400.00 provided by the State Department of Education from Curriculum Study Funds; these funds were approved for materials and some statistical services.

Activities in the year 1957-1958 included purchasing and installing equipment, and working out operational schedules and procedures; since the equipment was received January 2, 1958, active operation of the project was only during the Spring Semester. Therefore, the report of the first year of operation is of necessity a review of the installation of the equipment, the initiation of the project, and the limited activities undertaken. In spite of the brief operational period, however, some descriptive data indicating results can be included.

In summary, then, it is imperative that this report be read with the above considerations in mind, and with recognition that continuation of the study, based upon experience during the first short period of operation, will undoubtedly produce more substantial data upon which judgments can be based. This report, then, will:

1. Review the background and organization of the project
2. Describe equipment and facilities
3. Describe the current status of the evolving program
4. Report data available from the first Semester of operation
5. Present some evaluative assumptions based on the progress to date
6. Make some general recommendations, and suggest some guide lines and tentative conclusions that may assist other colleges in organizing instructional television projects
7. Present plans for activities scheduled for the coming year.

Broad Objectives of the Closed Circuit Television Project

Historically, the current project at San Jose State College has derived its objectives from the combined influence of the College staff and from the State Committee on Closed Circuit Television in College Instruction, (later the Committee on Instructional Television in the State Colleges).

The College Division of Education made its first presentation to request the use of CCTV in 1954. Under the pressure of steadily increasing enrollments and concomitant difficulty in scheduling observation for credential candidates in public school facilities, the Division wished to undertake a pilot study of observation by television. With the full cooperation of the San Jose Unified School District, the study was undertaken in 1956 with two industrial type vidicon camera chains. Some additional uses of CCTV in college instruction were undertaken during 1955-1956. (See Bibliography items 3, 4 and 5 for reports of these studies.) The results encouraged further exploration.

When the College was authorized to purchase its first equipment, the State Department of Education organized a Committee on Closed Circuit Television to study its potential values in the State Colleges, and to assist with experimental studies at San Jose and other colleges. This committee developed six hypotheses to be tested during the "pilot study" (See Appendix A) and, at the conclusion of the 1955-1956 work done at San Jose, and the other colleges in differing types of television utilization, the Committee regarded four of the hypotheses as proved. They then recommended continuing "exploration and demonstration of additional aspects of the feasibility and use of television for instructional purposes."

In 1956, because of the growing interest in television in college instruction, both in the State and in the Nation, the Committee on Closed Circuit Television was reconstituted and became the Committee on Instructional Television, with at least two representatives from each State College and representatives of the State Department of Education as members of the Committee. In July 1957, the expanded committee drafted a Framework of Areas of Agreement and Concern which included the statement,

> "...the task of the present committee has been changed to include finding out how, by whom, when, where, and under what conditions the medium of television can be applied to improve instruction and to alleviate certain pressing problems now confronting the instructional program in state colleges." (See Appendix B for the complete statement).

Objectives of the Study at San Jose can be derived from the record, but the original assignment was to cooperate with the public schools in the use of television for observation in

the teacher education program. Dr. J. Burton Vasche, Associate State Superintendent of Public Instruction (and Head of the Division of State Colleges and Teacher Education in the State Department of Education), stated in a memorandum to Robert L. Harkness, State Department of Finance, Chief of Budgets and Accounts in support of the television budget for San Jose State College:

> "...the experiment at San Jose is designed to link together six public schools (later reduced to four Ed.) in such a way that the college students may observe demonstration teaching situations by television without going off campus." (See Appendix C)

Later, as explained above, the objectives of the San Jose project were expanded by mutual agreement by the College and the State Department of Education to include to the greatest degree possible direct teaching and resource use of television, especially in engineering and sciences.

The specific objectives of the San Jose Instructional Television Project, which are in accord with the general objectives set up by the State Committee as "Areas of Concern" are:

Objectives of the Instructional Television Project

1. To investigate and determine the usefulness of closed circuit television in the instructional program of the State College.
2. To evaluate, insofar as possible, the effectiveness of guided observation by closed circuit television in the teacher education program.
3. To determine the acceptability of the television observation program to the College students and faculty, and the teachers and pupils in the public schools.
4. To extend the use of closed circuit television in areas other than teacher education to determine educational and operational feasibility.
5. To explore the operational costs of closed circuit television for the instructional purposes selected for investigation.
6. To explore the kind, type, and amount of equipment and special facilities required for the instructional purposes under investigation.
7. To explore the personnel requirements for operation and administration of an instructional television program.
8. To explore technical aspects of television as they affect instructional utilization of the medium.

9. To report information that can assist the College Administration and Staff in appraising the values of television in college instruction, and to provide information to give direction to continuing exploration of television.

10. To report information that may assist other colleges in planning for, and establishing, instructional television projects.

11. To present progress reports as appropriate to the College Administration and to the State Committee on Instructional Television.

Closed Circuit Television Project Activities - 1957-1958

To realize the objectives of the closed circuit television program, specific projects were initiated at San Jose. The primary project was to provide observation experiences for students in Teacher Education by televising public school classroom activities for college classes. The increased scope of the project is indicated by the development of six other applications of closed circuit television which were explored as intensely as time, personnel, and schedules allowed.

Teacher Observation. From March 10, to May 29, 1958, scheduled observations for students in Teacher Education were conducted by closed circuit television. Viewings were initiated in public school classrooms and transmitted via leased cable to the College where sound and picture were distributed to television receivers in room 55, Education Building, for a multi-section group of students in Elementary Education; in Centennial Hall, rooms 162, 165, and 166 for Secondary Education students, and rooms 231 and 234 for Psychology students. Although the television observations were originally planned especially for selected education courses, the instructional television facility permitted students in Educational Psychology, Health and Hygiene, and other courses in Education to receive observation experiences never before possible. (Reported in Chapter II.)

Engineering. Nine demonstration-lectures were televised from laboratory facilities in the Engineering Building to the Engineering Auditorium for multi-section groups of Engineering students. Three of the demonstrations were presented for students enrolled in Engineering 1 and for visiting groups of high school students and other guests; this series of programs gave opportunity to explore the effects of repeating the same presentation.

Six demonstration-lectures were conducted as part of a regularly scheduled engineering course (Edgineering 25) for a multi-section audience of students from seven

laboratory section. (Reported in Chapter III.)

Special Teacher Education Presentation

A special program was presented for a Secondary Education class (Education 170), meeting in room 315 of the College Library. The Principal of Roosevelt Junior High School and four members of his faculty conducted a discussion on problems of discipline and guidance in junior high schools. The presentation was initiated in a classroom of the school used for television observation. Two-way audio communication permitted the college students to ask questions of the panel at Roosevelt and to receive immediate answers. (Reported in Chapter III, Section 4.)

Resource Television

The term "resource television" (where television equipment is used to provide convenient close-up pictures of a demonstration during some part of a class session or course) is exemplified by the television utilization of an instructor in Industrial Arts who demonstrated techniques of "fly-tying" to a group of seventeen Occupational Therapy Crafts students. This group was able to observe the intricate manipulative skills involved in working with extremely small objects.

In one section of Education 124 (Audio-Visual Methods and Materials), a group of students (guided by the report of the California Council on Teacher Education on Television in Teacher Education)* used the closed circuit television system to present a series of demonstrations on aspects of instructional television. In a Librarianship course, television was used to demonstrate usage of the card catalog as an exploration in the use of the medium.

Journalism Newscasting

As a service to students in Journalism Newscasting, the instructional television studio facility was used to present three fifteen minute television newscasts prepared in all details as class work. The instructional television facility gave students in this course their first opportunity for practical, complete experience in their area of study.

Special Presentations

For a Management Conference sponsored by the Industrial Relations Institute on the campus, attended by college students and representatives of business, industry, and labor, the television system was used to present a panel discussion, films, and a discussion of applications of television in business and industry to the more than 100 conference participants in five different viewing rooms in the College. Two-way communication permitted questioning of the panel by the audience groups.

*Bibliography, Item (8)

Numerous demonstrations of the instructional television facilities were conducted by the instructional television staff for college classes and for faculty groups. One demonstration ("Art, Graphic, and Photographic Techniques for Television") was conducted for a 9th Grade Art Class from Roosevelt Junior High School. A majority of the cooperating teachers in the public schools visited the College to see the observation program in operation, and some of them brought their classes to "see the other end of the line."

From March 19, to June 24, 181 visitors registered at the College Instructional Television Center to observe the project and to participate in conferences on project procedures and facilities. Represented in the list are many California institutions, as well as visitors from New York, Washington, D. C., Illinois, Oklahoma, Utah, Massachusetts, Washington, Idaho, and from India, China, Japan, Australia, and New Zealand.

Statistical Summary of Instructional Television Operation, January 6-May 29, 1958

In the period covered by this report, a total of 1408 college students participated in the Instructional Television Project. Thirty-four instructors in 18 courses in 6 departments used closed circuit television. Of the 34 instructors, seven taught on television; in addition, 3 guests of the College (Medical Doctors) gave teaching presentations. A total of 32 studio-type presentations and class demonstrations was undertaken, 19 of these were direct teaching for regular classes, 6 more were presentations by students, and 4 were public service-type programs. In 17 presentations, a total of 22 different students from the Occupational Curriculum in Speech and Drama worked as cameramen, floor directors, audio operators, and in other duties; in 15 presentations students were not used because of scheduling problems or because their services could not be utilized for their benefit.

For the observation program, a total of 267 hours and 15 minutes of transmitting time was completed; the mobile equipment was operated a total of 381 hours and 50 minutes including operating, warming-up, and testing during the operational period; an additional 49 hours and 15 minutes were required for testing the new equipment prior to regular operation.

Preparation of this Report

The Instructional Television Evaluation Committee at the College provided the patterns for collecting data and reporting this study. Academic Department Coordinators for the Instructional Television Project were members of the Evaluation Committee and served as liaison between the Committee, the Instructional Television Staff, and their departments. The Supervisor of Closed Circuit Television Projects, Mrs. Gaither Leo Martin, supervised the organization of the data, prepared the draft of the report and did the statistical analyses. In the latter activity, she was greatly assisted by Mr. David D. Cram, College faculty member, who volunteered many hours of effective work. Printed portions of the report were reproduced through the courtesy of a Division of Cohu Electronics, KIN TEL, manufacturers of the equipment used in the program. Graphics and Photography were done by the Preparations of Materials Department, in the Division of Audio-Visual Services, by Dr. Jerrold Kemp and Mr. Willard R. Card. The Draft Report was presented to the Instructional Television Evaluation Committee early in September 1958 for review and final interpretations; then the final presentation of the report was prepared for the State College Committee on Instructional Television for its September 25, 1958, meeting.

Organization of the Report

Sections of the report will treat details of each aspect of the project. Organization and Personnel, and Facilities for Instructional Television, complete this chapter. Chapter II includes procedures and data for the Television Observation Program conducted for the Division of Education, and the Departments of Health and Hygiene and Psychology. Direct Teaching by Television in Engineering and Health and Hygiene, and Special Instructional Television Presentations, are reported in Chapter III. Chapter IV includes Conclusions and Recommendations which were summarized at the opening of this report, and Chapter V briefly reviews plans for the coming year, 1958-1959. A selected Bibliography and an Appendix conclude the report.

Included throughout this report are pages of illustrations which are also separately combined into a PICTORIAL REPORT of 32 pages. The separate report provides a brief visualized review of the Instructional Television

Project at San Jose State College during 1957-1958, and omits statistical and evaluative data restricted to this STUDY REPORT. The PICTORIAL REPORT will receive general circulation to answer many questions received about the facilities and procedures for the project; circulation of the STUDY REPORT will be limited to persons and committees authorized by the College and the Committee on Instructional Television in the State Colleges.

SECTION 2

ORGANIZATION AND PERSONNEL

Organization for the Instructional Television Project at the College has been established as shown on chart following. The Department of Instructional Television Services in the College Division of Audio-Visual Services has operational responsibility for the program. Representatives of academic division of the college, serving on an Evaluation Committee had general responsibility for determining the procedures, content, and scope of the evaluative aspects of the program. This Committee included faculty members assigned as Departmental Coordinators for the television projects conducted for their departments. The chart also indicates the organization pattern proposed by this group for the coming year to facilitate the program and economize on faculty time.

Another committee, the College Radio and Television Committee, is advisory to the President on matters relating especially to programs presented by the college in the public interest by broadcasting; this group also nominates members for the Evaluation Committee. The students in the Radio-Television Curriculum in tne Department of Speech and Drama are given opportunity to have experience on instructional television programs when appropriate, and when schedules can be arranged.

Not shown on the chart are the personnel of the San Jose Unified School District who have played major roles in facilitating the Teacher Education project for observation by television. Their cooperative assistance is described in this chapter and in other portions of the report.

This Section reviews the committee and staff personnel and their functions in the program, as well as the participating academic department personnel. Later sections of the report enlarge on specific functions of participants, when appropriate.

Instructional Television Project Personnel - College

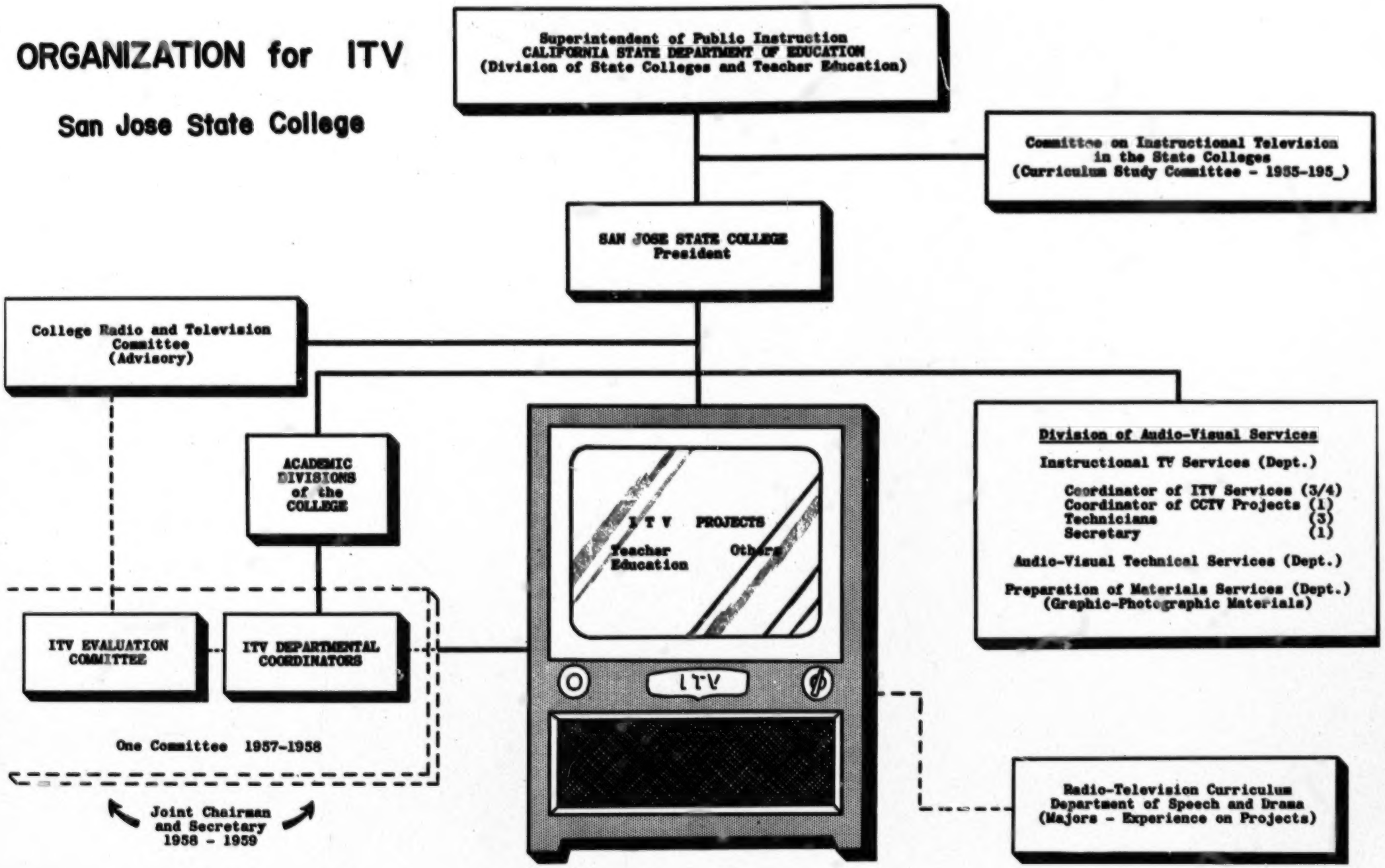
The Department of Instructional Television Services in the Division of Audio-Visual Services, has the following staff:

1. Supervisor of Closed Circuit Television Projects (full time, 12 mos.)

This professional staff member supervises planning and

ORGANIZATION for ITV

San Jose State College



SJSC-ITV-6/58

scheduling of projects, and serves as research coordinator. (Mrs. Gaither Lee Martin).

2. Coordinator of TV Services (3/4 time - from A/V Administration).

This professional staff member coordinates and directs studio-type instructional television presentations. He has additional assigned responsibility as chairman of the College Radio and Television Committee. (Mr. John W. Westfall)

3. Technical Staff:

Equipment Technician II - (Senovio Garza)
Equipment Technician II - (Glenn Stewart)
Equipment Technician I - (Robert Stapleton)

4. Clerical Staff:

Intermediate Secretary - (Mrs. Mary Lee Mattison)

The Instructional Television Project Staff was assisted by these members of the Division of Audio-Visual Services:

Head, Division of Audio-Visual Services (Dr. Richard B. Lewis)

Coordinator, Audio-Visual Technical Services (Ray A. Litke)*

Coordinator, Graphic-Photographic Services (Dr. Jerrold W. Kemp)

Graphic-Artist Photographer (Willard R. Card)

Coordinator, Audio-Visual Utilization Services (Thomas D. Clemens)

Members, Technical Staff, Audio-Visual Service Center (Walter Fox, Glen Pennsinger, and Jack Gifford)

The Evaluation Committee - 1957-1958

On September 30, 1957, an Evaluation Committee, with representation from the Departments of Psychology, Teacher Education, Health and Hygiene, and Engineering, was established. The primary responsibilities of this committee were: (1) To assist with the organization and supervision of the Instructional Television Project, and (2), To design developmental studies and to evaluate data and reports.

*Mr. Litke is in charge of all technical aspects of the Instructional Television Project.

The Evaluation Committee was composed of:

Engineering	Mr. James Anderson*
Teacher Education	
Elementary Department	Dr. Clay Andrews* Dr. M. B. Miller Mr. J.M. Hofstrand (Fall Semester)
Secondary Department	Dr. John A. Barr* Dr. John C. Woodward
Psychology	Dr. Gene Wallar* Dr. Edward W. Minium Dr. James J. Asher
Health and Hygiene	Miss Catherine Wallace*
Audio-Visual Services	Dr. Richard B. Lewis
Instructional Television Staff	Mrs. Gaither Lee Martin Mr. John W. Westfall

Starred (*) members were also Instructional Television Project Departmental Coordinators. Department Heads from Teacher Education and Health and Hygiene participated in early meetings of the Committee.

The Committee held twenty-five meetings from September 30, 1957 until June 3, 1958. Meetings were held each week until May 4, 1958, when the heavy operating schedule of the Instructional Television Project made it necessary to hold meetings every two weeks. Approximately 375 man hours of time were devoted to Instructional Television Committee activities.

Part of the activities of the Evaluation Committee involved:

1. Developing a descriptive survey concerning the Closed Circuit Instructional Television Project.

2. Reviewing course objectives for television observation projects.

3. Scheduling classes for television observation, and selecting the sequence of public schools for observation.

4. Reviewing evaluations of the television project submitted by the participating public school teachers.

5. Developing specific areas for exploration providing funds become available for definitive research.

6. Proposing some tentative schedules for fall observation and television teaching projects.

7. Developing a format for reporting developmental studies.

8. Reorganizing the Evaluation Committee for 1958-59.

9. Submitting an interim progress report for the initial phase of the Project to the College Administration and the State Committee on Instructional Television.

Departmental Coordinators

Five members of the Evaluation Committee also served as Departmental Coordinators. Released time for their services was allowed on the following basis: Teacher Education, Elementary: 1/4 time; Secondary Education: 1/6 time; Health and Hygiene: 1/6 time; Engineering: 1/4 time. The coordinator for the Department of Psychology did not accept released time in the Spring Semester. Three instructors in Health and Hygiene, not members of the Evaluation Committee, were also given some released time for television teaching and other related responsibilities.

It was the responsibility of each Departmental Coordinator to develop course objectives for television observations with other participating instructors in his department, to attend meetings with the teachers and administrative staffs in the public schools, to schedule observation experiences for their departments, to distribute materials pertinent to the project to participating instructors, and to act as liaison between the instructors in their departments and the Instructional Television Project staff in the utilization of television.

Instructional Personnel

In the observation program, 36 College and San Jose Unified School District instructional staff members participated in the Project. Twenty-three college instructors volunteered to participate in the Television Observation Program:

Teacher Education: Elementary--Dr. Clay S. Andrews, Mr. Frederick M. Brandow, Dr. Ronald R. Ferris, Dr. Tullye B. Lindsay, Mr. Kenneth Johnston

Teacher Education: Secondary--Dr. C. Denny Auchard, Dr. John A. Barr, Dr. Charles C. Coffey, Dr. John L. Moody, Dr. Curtis T. Stafford, Dr. John C. Woodward

Health and Hygiene: Dr. Evelyn L. Blackman, Mrs. Estees Potter Levine, Mr. Richard E. Whitlock

Psychology: Mrs. Mary B. Goff, Dr. Earl Jandron, Dr. James Sawrey, Dr. Adolph Schock, Dr. Gene Wallar

Teacher Education: Dr. G. W. Ford (Ed. 169) Dr. Patrick J. Ryan (Ed. 104), Dr. Earl Strohbehn (Ed. 170), Dr. William G. Sweeney (Ed. 100)--(Orientation viewing)

Participating College Personnel

Department	Number	Academic Rank	Number
Teacher Education			
Elementary	6	Assistant Professor	4
		Associate Professor	2
Secondary	9	Assistant Professor	6
		Professor	3
Health and Hygiene	3	Assistant Professor	3
Psychology	5	Assistant Professor	3
		Associate Professor	1
		Professor	1

In order to appreciate the contribution made by these instructors to the Instructional Television Project, it should be stated that only two of them had had previous experience with the television medium for observation. This brief experience was gained during the 1956 study.

Instructional Personnel in the Public Schools

The willing cooperation of teachers in the public schools who voluntarily allowed themselves and their classes to be televised day after day for the benefit of college students was, and will continue to be, vital to the success of the Instructional Television Project. These teachers spent many hours in preparing materials for the college instructors and students, and held conferences with the participating instructors and the project staff members; they developed techniques for presenting lesson and class activities to meet the needs of the Teacher Education Program and the requirements of the television medium, and they wrote evaluations of the project based upon their experience.

Participating Public School Teachers

Horace Mann Elementary School (15 days)	Mrs. Merle Brown Miss Alean Pett Mrs. Mabel Willson
Selma Olinder Elementary School (9 days)	Mrs. Thelma Barnwell Miss Mary Marsh Mrs. Enes Turbeville
Roosevelt Junior High School (15 days)	Mr. W. J. Allman Mr. Walter S. Hoshaw Mrs. Phyllis Morris Mrs. Kay Taix
San Jose Senior High School (14 days)	Mr. John B. Ogden Mr. Clarence Sloetzer Mr. Richard S. Williams

Details of the participation by this group are presented in Chapter II.

Public School Administration and Staff Personnel

The continuing assistance of Dr. Earle P. Crandall, Superintendent of the San Jose Unified School District, and the District Director of Instruction, Mr. Curtis Davis, implemented the cooperative effort between the College and the public schools. Within the schools, each principal gave generous and successful assistance in administrative details in connection with the project. They arranged meetings and schedules, provided for physical facilities required, and in every way possible made the project operation smooth and successful.

Participating Public School Principals

Horace Mann Elementary School	Miss Mary Gurkovich
Selma Olinder Elementary School	Miss Mary Dalesandro Mr. Stephen Everett (Vice Principal)
Roosevelt Junior High School	Mr. Roy Bursch
San Jose Senior High School	Mr. Ben Sweeney

It is important to mention here the interested and cooperative action by the Board of Education of the San Jose Unified School District which on December 20, 1956, voted unanimously to approve the television observation project to be initiated by the State through the College. Superintendent Crandall explained to the Board the problem schools faced in accommodating a growing number of student teachers and observers; R. B. Lewis speaking for

the College presented to the Board a brief, illustrated description of the physical equipment and operational arrangements for the project. The Board expressed interest in the project and indicated its appreciation for the problems of the College in the Teacher Education program, and its desire to assist as far as possible without jeopardizing the program of the public schools.

The Maintenance Staff of the San Jose Unified School District, under the direction of Mr. Horace Jones, installed ceiling hooks for special lights, and arranged and installed electrical power outlets at the four schools used in the program. Mr. Jones also gave constant cooperation during installation of Pacific Telephone Company lines to the schools, and materially assisted during the entire project. Custodians at each school were courteous and helpful.

Other College Instructors and Guests Participating

Four instructors supervised from one to three student presentations utilizing the Instructional Television Facility; these were: Mr. Gordon Grebb, Journalism; Dr. Lawrence Pugno, Secondary Education; Miss Marjorie Limbocker, Librarianship; Dr. R. B. Lewis, Education.

Seven instructors conducted direct teaching presentations in the course of the project: Mr. James Anderson, Dr. Ralph Parkman, Engineering; Dr. Marston A. Girard, Dr. Jack Smolensky, and Mrs. Jean Eldridge Lees, Health and Hygiene; Dr. Wayne Champion and Mr. Louis Melo, Industrial Arts.

Direct Teaching Presentations

Departments	Number	No. Pres.	Academic Rank	Number
Engineering	2	9	Associate Professor	2
Health and Hygiene	3	4	Associate Professor	2
			Assistant Professor	1
Industrial Arts	2	2	Associate Professor	1
			Assistant Professor	1

Three guests of the College gave direct teaching presentations for Health and Hygiene classes.

Dr. Donald Alcott, Pathologist, Assisted by Mrs. Winifred Smith, Technician, from Santa Clara County Hospital;

Dr. R. T. Dunkin, Dental Surgeon, San Jose;

Dr. Krist Biakanja, Pediatrician, San Jose.

Technical Staff and Functions

The Television Technicians were directly responsible to the Coordinator of Audio-Visual Technical Services (Ray A. Litke)

for technical aspects of the project, and to the Coordinator of Instructional Television Services (John W. Westfall), and the Supervisor of Closed Circuit Television Projects (Gaither Lee Martin) for operational aspects of the project.

The first five months of the project were spent in planning for the television system installation. Some of the duties performed by the television technicians were: assisting in writing technical specifications for the television equipment; tracing pass-ways for the on-campus distribution system cables; developing technical data report forms; renovating the war surplus radar trailer in preparation for installation of equipment; assembling special light units to be used in the public schools during observation; preparing accessory equipment, and developing tool inventories necessary for operation of the system; and maintaining television equipment for Radio/Television Curriculum in the Speech and Drama Department.

The television system equipment was delivered on January 2, 1958, and the Technical Staff, under the direction of the A/V Technical Services Coordinator, proceeded to complete the trailer modification and install and test the new equipment. Between January 3 and February 14 the three television technicians spent 624 man hours in trailer modification and installation; their efforts were supplemented by the assistance of three Audio-Visual Center technicians who spent 346½ man hours on trailer preparation including welding, wiring, and woodworking. The trailer required 930-1/2 man hours of work for completion. Additional time was required for installation of the studio equipment, construction of consoles and racks, wiring, and other installation details. Both TV and A/V technicians participated in this work which continued into the spring months during which daily operation was uninterrupted. No record was kept of the time devoted to the project by the Coordinator of A/V Technical Services or the Division Head.

The speed and efficiency with which the television system was installed after the equipment arrived on January 2, reflected the months of careful preliminary planning. On January 16, the first Engineering Demonstration-lecture was given over the television system, using the mobile unit as a control center. Thirty-five days after the equipment was delivered, a clear signal was sent over the distribution system from a public school to the Instructional Television Center on-campus.

From March 10 until May 29, 1958, the mobile field unit was in operation every school day from 9 A.M. until at least 2:30 P.M. This schedule usually required the services of two technicians in the mobile unit to operate the remotely controlled cameras and to perform other duties necessary for an hour by hour television operation. One technician remained on campus to maintain television receivers and other equipment, to complete installation of

studio equipment, and to assist with the studio teaching presentations. The Technicians developed a system of alternating days for field and on-campus service. They also had to move the camera equipment at the schools from room to room on a regular schedule.

It was of major importance to keep the technical team completely informed of all developmental aspects of the project. To ensure complete communication among the staff, four formal planned meetings, one evaluation meeting at the close of the operation in May, and many informal meetings, one evaluation meeting at the close of the operation in May, and many informal meetings were held. The television technicians were in direct contact with the college instructors and the teachers in the public schools, and it was vital to the success of the project for them to be aware of their public relations responsibilities as well as to be efficient in performance of their technical duties. Their primary duty was in relation to the instructor and his educational needs; second in importance was the effective operation and maintenance of the television equipment.

To ensure a clear understanding of their responsibilities the following list of duties for the technicians was developed:

1. Implement in every way possible the teaching efforts of the instructors, whether in direct teaching or in guided observation.
2. Operate and maintain the equipment effectively.
3. Keep efficient and factual records on all equipment use and performance, and of technical time on each assignment.
4. Use extreme care in handling all cameras, test equipment, and other TV accessories.
5. Send requests for replacement parts, additional equipment, and supplies to the Coordinator of Technical Services.
6. Understand the general objectives of all television teaching presentations, and guided observations, and demonstrate understanding by efficient camera and audio operation.
7. Keep up-to-date on all technical and developmental aspects of closed circuit television, and become informed about the educational aspects of instructional television.
8. Assist with the technical and operational training of Radio/Television students in the Speech and Drama Department when such assignments are made by the Instructional Television Project Administrative Staff.
9. Constantly develop skill in using the Instructional Television Project equipment.

10. Keep equipment, cables, and accessory materials in top condition and neat as possible.

11. Be aware of the importance of maintaining and cultivating good public relations with the college instructors, and with public school personnel.

12. Be diligent in maintaining strict safety rules and security of the equipment, and in protecting all public property.

Mention should be made here of the background and experience of the television Technicians: these men are graduates of two-year public technical schools in television servicing and repair. Further, through the cooperation of the Division of State Colleges in the State Department of Education, these men - with the Coordinator of A/V Technical Services - were sent to a three-day training school held at the KIN-TEL plant in San Diego. This school covered all aspects of servicing, maintenance, and operation of the television equipment purchased for the project. The representative of the manufacturer of the campus distribution system also briefed the men in the operation of the system.

Finally, it must be recorded that the work required to get the project in operation on schedule in the brief time available required a tremendous effort and complete cooperation of all members of the technical team; that the schedule was met and the program operated on the first try - and continuously thereafter - is a tribute to their devotion and their skill.

This report on personnel would be incomplete without mentioning that activating this program in less than eight-months after budget approval would have been impossible without extraordinary assistance. Every department of the State Government that had responsibility for action to initiate the project gave outstanding assistance and complete consideration. The State Department of Finance (Purchasing, Communications, and Legal Divisions); the State Department of Education (Division of State Colleges and Teacher Education and the Bureau of Audio-Visual Education); the San Jose State College Staff of the Office of the Business Manager (Accounting Office, Purchasing Office, Buildings and Grounds), and the College Audio-Visual Service Center Staff all met every emergency with understanding and enthusiasm to help meet the deadlines set up. Every deadline was met.

Another group of people who have rendered the State and the College immeasurable service re the representatives of the commercial organizations whi.n were potential suppliers of equipment or services for the project. Between January and December 1957 over fifty meetings were held with company engineers or representatives of ten companies manufacturing television systems, receivers, distribution systems, special

lights, accessory equipment, and with the representatives of the Pacific Telephone and Telegraph Company. Meetings ranged from one hour to full days, Saturdays and Sundays included. All these people gave freely of technical advice, specifications, and practical knowledge, and without competitive selling pressure. Their interest in the project, attested by their continuing visits and encouragement and assistance, is a credit to their professional concern for the long range potentialities of the project.

In short credit for getting the Intructional Television Project started goes to persons too numerous to mention.

SECTION 3

FACILITIES FOR INSTRUCTIONAL TELEVISION

Space, equipment, installations, and special facilities are exceptionally important elements in the Instructional Television Project. This chapter will discuss briefly each major element, but the pictures and captions in this report give further specific information.

Facilities

During early project planning, the Instructional Television Center was in Barracks - B7, 600 square feet. This facility was used during the spring and summer of 1957. In late summer, with the completion of the Administration Building, the headquarters, studio, and master control room for the Instructional Television Project was moved to room TB-34. (This room, formerly the College Accounting Office, is not satisfactory for classroom functions but is well suited for instructional television purposes because of its open floor space - 780 square feet - three storage rooms and two inner offices).

Additional electrical power was brought to this room through a breaker panel and 30 ampere outlets strategically located. Audio-visual drapes for light control and background purposes were installed. Ceiling lights were augmented by 5 two-tube VHO (very high output) fluorescent units with remote ballasts, and Color-Tran units were available from the Audio-Visual Department for supplementary lighting. One closet was modified to provide a small work area for minor repairs. The control room, a former office, was equipped with the film chain controls and the studio camera system controls in portable consoles. One closet was equipped as a master control room for Pacific-Telephone and Telegraph racks, campus distribution system equipment racks, and antenna lead-ins. A multiple-stack antenna tower was placed on the room immediately over TB 34.

The Campus Television Distribution System

The College campus distribution system for television signals provided a central distribution point with control panels and lines and outlets for 27 receiver stations on the College campus; additional audio lines were installed parallel with the television lines. This system also provided an antenna system for reception of television broadcast stations in the area. Television signals can be transmitted from and to any tap point on the system and simultaneous programs - either closed circuit or from the air - can be received and distributed.

Though circuits and other details of the television signal distribution system are explained in the illustrations, some general statements may be valuable. For example, wire (a special type called "coaxial cable") is the roadway for television picture and sound in a closed circuit system. The cables used in the San Jose State College system were of two types, RG11U (about 1/2" in diameter) and RG59U (about 1/4" in diameter). Since the college system required two-way program transmission, a dual cable system proved economical. One cable system was used for sending camera signals from rooms on the campus to any other point on the system, the other for carrying signals coming into the distribution center from the off-campus lines, from the antennas, and from the studios. Over 10,000 feet of cable were used. Further, while the coaxial cable was being installed, it was considered economical and desirable to put in a parallel audio cable for future sound or intercommunication use; a three-wire line was installed to provide two circuits when needed.

The system provides 27 "tap points" where receivers or cameras could be connected; of these, one was at the electronics work bench in the Audio-Visual Service Center, two in college television studios, the others in classrooms in five buildings. Additional classrooms can be reached by extending cables from existing tap points.

Getting from "here to there" is a problem with cables. Fortunately, since coaxial cable carries no significant amount of current, conduit is not required for cable installation, except for physical protection. But finding passageways, ducts, or conduit in and between buildings poses problems. The new classroom building was provided with 3/4" conduit into which two coaxial cables, telephone cables, and audio cables were to be run. This was finally accomplished, but smaller wire than desirable was used, necessitating additional amplifiers to convey the signals. Fortunately, most schools and colleges when constructing new buildings, are installing television conduit of a proper size to accommodate future television requirements.

The antenna tower on the roof over Room TB 34 extends about 40 feet above the second floor roof. The antennas are for specific channels, and the stack is above buildings

that might interfere with direct line reception from Bay Area television stations. Leads come down the outside wall, one from each antenna, and enter through a window into the Master Control Room where they attach to the system panel.

A sub-contractor for the Spencer-Kennedy Laboratories, Inc., (Electrical Appliance Company, Watsonville) installed the distribution system. The State supplied coaxial and audio cables and contracted directly with the Electrical Appliance Company for installing the cable. This proved an economical decision since this sub-contractor installed cable for the State and connected the Spencer-Kennedy Laboratory system at the same time. Further, this company had previous experience in handling coaxial cable which requires special skills not always familiar to electrical contractors. (A stretched or bent cable can seriously affect performance.) The Spencer-Kennedy Laboratory Engineer supervised final installation and testing, and, a most important service, instructed the Instructional Television Technical Staff in system operation and maintenance. The final briefing session was recorded on tape, transcribed, and later edited by the engineer, and his system description and technical advice is permanently available along with system schematics and date sheets.

Details of the Campus distribution system will not be discussed here, since every installation is custom designed to serve local requirements. However, Broadband Amplifiers were specified and are used throughout, and seem well adapted to the needs of the College.

Only one problem has been discovered to date: one leg of the incoming (classroom to distribution center) system is operating at a low level, requiring additional amplification at the remote "head end"; the cause of this problem is being explored. In other functions, no unexpected problems or limitations have evolved.

The Off-Campus Leased Cable System (Pacific Telephone and Telegraph Company)

For the teacher observation program by television, the Pacific Telephone and Telegraph Company installed a coaxial cable line with appropriate accessory components from four San Jose public schools to the Master Control point on the Campus. From here, signals from the schools can be sent through the Campus system; and, over the same system, signals can be sent from the College to the public schools. Three channels, two incoming and one outgoing, are available, and additional channels can be supplied on order. The Telephone Company also provides a separate inter-communication system parallel with the television circuit; this system, terminating in jacks at each receiving point, permits phone contact among all users of the system.

Over a year of study, planning, and negotiations preceded

installation of the system by the Pacific Telephone and Telegraph Company. Existing tariff rates for commercial television services are beyond financial practicality for educational use, and no rates have been established for projects such as the teacher observation program by television at San Jose. The Hagerstown, Maryland Project system is similar in some respects, but is much more extensive and has requirements differing from the one reported here. Private closed circuit systems, similar to "community antenna" systems are in operation for educational use in several parts of the country, and are generally less expensive than public carrier services. Local conditions, however, ruled out a State-owned off-campus distribution system.

The interest and competency of the representatives of the Pacific Telephone and Telegraph Company, and their thorough engineering study of the College requirements, resulted in a "pilot" system that has been performing satisfactorily. Only the highest praise can be given for the care and attention to detail, and the follow-up services, of the Pacific Telephone and Telegraph Staff. This has been a pioneering effort for both the College and the Company. Evaluations by both institutions will be made after some experience with the system.

Further, since no tariff on closed circuit television services of the type installed exists, extensive negotiations among State officials, the Telephone Company Administration, and the College Instructional Television Staff were required. Cooperative effort marked all negotiations, and contract and installation were completed on schedule.

Television Receivers and Monitor-Receivers

Extensive study and planning by the College Instructional Television Staff led to the development of specifications for a custom-designed receiver-monitor. The exploratory nature of the San Jose Project necessitated maximum flexibility and optimum performance of the equipment selected. No available commercial receiver-monitor seemed to meet the specifications. After consultation with many television equipment representatives, the College was directed to CONRAC, Incorporated, in Glendora, California, manufacturers of high quality monitors used by many major manufacturers, and quality kit type receivers for the custom television trade. The specifications set forth by the College required that they have a neat, semi-portable, wood cabinet with carrying handles; a front mounted quality speaker with high quality audio section in the receiver to drive the speaker; a locking control panel; top quality video circuitry; high definition; facilities for adjustable supporting legs; a 21" picture tube; and facilities for use both as a video monitor and as an RF (standard domestic) receiver on both 72 and 300 ohms.

Some explanation here of "video monitor" and "RF receiver" may be appropriate. The former is a television receiver that will accept picture signals only, with the full bandwidth that camera systems can transmit, in this case 8 mc. Sound is not carried on a video circuit, but the picture signal is of high definition, definitely superior to broadcase quality. Video distribution is usually used for short-range transmission in instructional situations, such as in resource use of television; i.e.,laboratory demonstrations and high magnification work where detail is essential. RF (Radio Frequency) transmission and reception is of the same nature as the signals broadcast over television stations, and optimum reception on closed circuit is about 4 mc bandwidth. Many home receivers do not accept the full value of this bandwidth, and the specifications for the closed circuit receiver indicated 4 mc.

Since the sound accompanying the picture in many commercial receivers leaves much to be desired, and small side-mounted speakers are unsatisfactory for large group viewing, the specifications called for front mounted, quality speakers in a properly designed cabinet baffle. The audio circuitry and amplification was to be of a quality appropriate to the speaker.

Because of a wide variety of viewing situations, the cabinets were designed to function on top of a desk or on legs. Johnson Leg Brackets were installed, and standard 1" conduit was cut to appropriate length to establish desired receiver height; the legs can be cut to add lengths to allow the receiver to stand level on sloping or stepped auditorium floors, if necessary. Connections on the rear of the receiver-monitor provide for off-the-air reception from a standard 300 ohm antenna line, from a 72 ohm closed circuit distribution system, and from video outputs of camera systems; provisions are made also to gang sets by "loop through" connectors. Inputs are provided, too, for separate sound signals when the sets are used as video monitors, either using the speaker alone or with the audio amplifier in the receiver.

The administration and engineering staff of CONRAC, INC., were interested and cooperative in developing the pilot models of the receiver-monitors, and produced an initial production run of 21 units for the College. Evaluation will be made of the receiver-monitors after a period of use. In the meantime, they have operated with reliability and satisfactory performance. In addition to the Conrac units six RCA standard domestic receivers (two 21" and four 24") were purchased for comparison with the Conrac Units. In addition, three 17" RCA portables were purchased for line monitors for studio use, and for testing the distribution system.

Television Cameras and Associated Equipment

A major problem in purchasing equipment is the selection of appropriate television camera systems. First, it is especially important to determine the type of program or programs that are to be undertaken; then, it is necessary to

establish minimum specifications for types of equipment and levels of performance required for the program. The Occupational Radio-TV Committee and the Instructional Television Committee, both Curriculum Study Committees of the State Department of Education - with representatives from all State colleges made two important decisions and recommendations in December 1956.

1. Vidicon camera systems would be recommended (rather than the more costly and complex image orthicon systems used by most television stations).

2. "Broadcast type" vidicon camera systems and associated equipment would be recommended, rather than "industrial type" equipment.

These decisions, based on much deliberation and considerable experience, were justified in this way: vidicon cameras are smaller, more rugged, less costly, (both originally and operationally), and easier for students to use than image orthicon equipment; they are more easily maintained. Vidicon tubes are by no means experimental, having been standard in commercial film chain equipment for a number of years; further, much developmental work is being done toward establishing the vidicon's light sensitivity at a level to permit their use in all commercial studio conditions. Numerous stations use vidicon studio camera systems on the air with satisfactory performance. "Broadcast system" is more difficult to define in terms of exact performance characteristics, except in one key point: the provision of external synchronizing pulses. Industrial systems use circuitry that provides pulses from internal system sources, pulses that may vary in type and source from system to system, thus making combination uses of equipment extremely unsatisfactory. Broadcast systems utilize a synchronizing generator that supplies pulses meeting specifications established by the EIA (Electronic Industries Assoc.- formerly RETMA) and the Federal Communications Commission. All stations and all receivers using these external synchronizing generators can be assured of receiving signals, and combinations of equipment can be made without complications. There are other differences in broadcast equipment and in the complexity of components, but these will not be discussed here.*

*It should be mentioned that the above statement does not imply that Industrial television equipment is inferior to broadcast equipment - it is different. Industrial vidicon equipment offers advantages of low price, simplicity of operation and maintenance, variety of packages and combinations of units, and, now, some industrial systems can be adapted to broadcast use with addition of an E I A synchronizing generator. For many applications in closed circuit instruction, consideration of industrial equipment seems fully warranted.

Broadcast equipment is somewhat more expensive than some types of industrial equipment, but when it is purchased it will not limit future expansion of the system, or ultimate transmission over the air. It will combine with other makes or types of equipment; further, it can be adapted to color by addition of color camera chains while all other components remain unchanged. Thus, as a long-term investment, without a "dead end" potential, "broadcast" equipment seemed desirable, especially for an exploratory project in a developmental period of television for instruction.

Procedure for Bidding and Purchasing Television Equipment

After careful analysis of the three possible uses for television equipment in the College program - resource use, observation by remote cameras in the public schools, and studio-type teaching programs (as well as occupational training potentials for Radio-Television Majors in Speech and Drama) - a set of general requirements was drafted. These were then discussed at great length with representatives of a number of manufacturers of industrial and broadcast television equipment. With each representative, minimum specifications were explored, and after all consultations were completed, specifications for bidding were written. To the greatest degree possible, exact specifications were given, but since each manufacturer provides differing methods of packaging systems, some flexibility was essential to avoid ruling out a desirable bidder. Five companies submitted bids for the camera systems, and the award was to KIN TEL of San Diego, California. This company delivered all essential units within 38 days of bid award.

Details of the equipment purchased* may best be explored in the pictorial sections of this report, but in summary, the equipment included three KIN TEL studio cameras, with view-finders and 4-lens turrets, lenses, tripods, dollies, tripod heads, camera controls, camera control monitors with "A" scopes (osciloscopes for measuring camera control adjustments), synch generators, power supplies, an electronic switcher fader, monitors, and necessary connecting cables.

In addition, three remote control camera systems were purchased, together with all associated camera controls, synch generators, power supplies, remote camera control panels, switcher-fader, connecting cables, monitors, and accessories. A film chain camera system was included, with multiplexer, one 16 mm magnetic/optical projector and one dual drum 2" x 2" slide projector, together with table and mounting equipment. This package also included audio-video

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*See Appendix D for cost of these units and other equipment purchased for the program.

modulators for combining the video and audio signal and producing a radio frequency (RF) signal for transmission on the distribution system to standard commercial receivers.

All components in the systems described above are compatible, and with minimum adjustment can be interchanged, used in combinations, or set up as single, complete operating units, according to the teaching requirements of the College program. The film chain can be operated independently of other camera systems, or coordinately with one or more units in the studio, or with other programming on the off-campus or on-campus distribution systems.

Audio facilities, also flexible in capability, include three mixer-pre-amplifiers, providing two-channel, four-channel, or six-(or more) channel mixing of microphone circuits. Microphones selected are low impedence, lavalier types, of high output, which serve for table top, neck-worn, or hanging units, as required.

Special mention here should be made of the remote cameras. One is a three-lens turret camera (without viewfinder), with complete remote control on all functions including lens selection, iris, focus, pan, and tilt; two cameras are equipped with Perkin-Elmer Zoom Lenses, of 30 mm (1.2") to 150 mm (6") focal length, and capable of remote adjustment on all functions--iris, focus, pan, tilt, and "zoom" (which means that one lens can provide a view of any subject from close, narrow angle, to distant, wide angle). Specifications called for quiet operation of these remote units. The Zoom lenses had not been tested in field use, and the motors in the models delivered have proved to operate at a noise level extremely disturbing to some classroom teachers and pupils in the public schools, causing them to be aware of camera operation. It is understood that new models of this lens may give low-noise performance. The remote turret lens camera is relatively quiet in all functions. One other limitation of the Zoom lens: the nature of its design makes it a relatively "slow" lens, and therefore it requires more light than the standard 16 mm lenses generally used on vidicon cameras; this limitation was weighed against the flexibility of scene coverage by "zooming," and the unit was specified for two cameras. It is probable that, for the teacher observation program, one zoom camera and two turret cameras would now be specified, after experience in the field.

It might also be mentioned that the pilot study of 1956 utilized only two cameras in the classrooms, but that experience prompted the College faculty to ask to try three cameras for more flexible picture pick-up in various parts of a classroom.

Installation of the camera systems was undertaken primarily by the Instructional Television Technical Staff Members and the Technical Staff of the Audio-Visual Service Center of the College. Both the studio and the mobile trailer unit required construction of consoles made of

welded angle iron and plywood surfaced with formica. Interconnecting the television camera equipment required only attaching cables at the proper connections, for the most part. However, the total installation required many man-hours: the mobile unit required 624 man hours by the three television technicians and 346½ man hours by the Audio-Visual technicians, a total of 970½ man hours. The time of the Coordinator of Audio-Visual Technical Services in planning, supervising, and testing the installation was not recorded; needless to say his work was extensive and he spent much time at the task. Installation of the Instructional Television Studio equipment was not recorded, as this project was undertaken over a period of weeks after the trailer was operational.

An engineer from KIN TEL spent about 24 man hours assisting the College Instructional Television Staff in testing and aligning the equipment after installation. Engineers of Neely Enterprises, representatives of KIN TEL, also spent about 24 man hours in assisting in checking the equipment. Through the cooperation of the State Department of Education and Neely Enterprises, the three television technicians and the Coordinator of Audio-Visual Technical Services attended a Factory School at the KIN TEL plant in San Diego; this two-and-one-half-day school materially assisted the College technical staff members to become familiar with servicing and repair of the KIN TEL equipment.

Problems with the television camera system have been few, after a normal "de-bugging" period that is expected with any new installation. It is a tribute both to the KIN TEL equipment and to the College Instructional Television Staff that units were operational in a very few days after arrival. Problems of loose connections, cold joints, faulty connectors, and other minor items, were rapidly traced and solved. One major problem still remains: when used in some public school locations, the remote camera systems are picking up an intermittent radio frequency signal that appears as a herringbone "noise" in the picture; it is believed that the noise source may be a local radio station. Several methods thus far attempted to correct the problem have failed, and until the RF is completely eliminated, the system as used in the observation program cannot be considered entirely satisfactory.

A minor component of deterioration has been observed in several of the vidicon tubes: a flaking that produces spots on the camera tube, and thus on the receiving tube picture. This is unusual, and has not been observed on previous vidicons used. A constant problem with television camera equipment is failure of the cable at the camera connectors, where constant motion, and the weight of the cable encourages breakage. The Instructional Television Staff has modified the connectors supplied, building an extension on the shank for the cable clamps, and has thus reduced cable failure substantially; but the problem is to be expected, and it is hoped that connector manufacturers will improve this critical point. The pan-tilt unit motors have failed on the three remote cameras, and have been replaced; in the observation program, these

units operate hour after hour and must be rugged for reliability.

The reader is invited to examine the pictorial portions of this report and the captions with each illustration. Descriptions of individual instructional television projects that follow in this report will indicate the utilization of equipment and reveal the reasons types of equipment were specified. It will be apparent that a wide variety of equipment combinations, program transmissions, and televi. on teaching techniques can be undertaken. The entire system, while seeming complex to one unfamiliar with television installations, is extremely forthright in design. And, it should be understood that while any specific teaching function might be performed with but a small portion of the equipment, the total system was conceived to permit experimentation without technical limitations.

If it seems redundant to mention the excellent cooperation and services of the equipment manufacturers and distributors, this repetition will be forgiven if readers can realize the hours and days of discussions, preparations of specifications and bid proposals the fifteen different companies invested in helping the College plan and obtain the instructional television equipment and installations. And, in the course of business, all but a few companies received no award and realized no immediate return for their time, energy, and talents. Let it be well known that these services are appreciated. It is reasonable to believe that in the new and growing field of instructional television all these reputable and cooperative firms will derive benefits from their investment at San Jose. They have proved to be continuing friends, and look with interest on the program, lending support and assistance where they can; this is a tribute to the depth of their insight into the service function of business to education. It would be an incomplete statement not to list these companies: All Brite Fluorescent Fixtures of California, South San Francisco; Allied Radio and Television, San Jose; Conrac, Inc., Glendora, California; Custom Electronics, Oakland; General Electric Company, Schnectady, New York; Dage Television Division of Thompson Products, Inc., Michigan City, Indiana; Elmar Electronics, Oakland; General Precision Laboratories, Pleasantville, New York; Jerrold Electronics, Philadelphia, Pennsylvania; KIN TEL, a Division of Cohu Electronics, San Diego, California; Neely Enterprises, North Hollywood and San Bruno, California; Radio Corporation of America, Camden, New Jersey; Spencer-Kennedy Laboratories, Boston, Massachusetts; and Sylvania Electric Company, Burlingame, California.

Evaluating television equipment is a difficult problem. Competitive demonstrations are to be avoided; scientific measurements under proper conditions are more fair to manufacturers. Actual field experience with the equipment, and observation of units in service are useful in evaluation. Technically competent persons should evaluate both specifications and actual equipment. In a field developing as

rapidly as television technology, each day brings new improvements and simplifications and increased reliability. It should not be discouraging to prospective buyers that equipment obsolescence is to be expected; this is normal, and with the current status of well designed and well build equipment, television is a practical and dependable medium of communication. In fact, the equipment is developed to a far greater extent than are the skills and vision of those who are attempting to use it for education. With a spirit of exploration and determination and inventiveness, educators have with television an ubiq tous tool of vast and unexplored potential for good. First, unwarranted fears must be allayed, which reminds us of a questionnaire asking Labor its opinion of "automation" - 75% were against it; asked its opinion of "better, more economical, labor-saving, and cleaner ways to produce goods" 65% of the same group was for them.

C H A P T E R - II
T E L E V I S I O N O B S E R V A T I O N P R O J E C T

INTRODUCTION

The Instructional Television Observation Project was developed through five major organizational steps: course selection, scheduling, organizing telecasts from the public schools, technical and operational aspects of the project, and evaluating the project. Each of these steps is briefly described in the following pages.

The first major step in organizing the observation program in the fall of 1956, was in the area of course selection. To make clear the complexity of the organization and coordination of such a project it is necessary to understand the types of educational experiences the program sought to provide for the college students. This may be achieved by briefly describing the courses selected to be part of the observation program.

The following courses were selected by the Division of Teacher Education for the study:

Elementary Education 104 - Elementary School Curriculum and Observation.

Education 150 - The Learner (for secondary credential candidates).

The Department of Psychology selected two courses in which the television observation could profitably be utilized: Psychology 150 (Educational Psychology) and Psychology 102 (Child Psychology). Health and Hygiene courses 101 (Child Growth and Development) and 102 (Adolescent Health Problems) were selected by the staff in that department to utilize televised observation.

The second step, after the initial effort to select and organize courses for the television observation program, was in the area of scheduling. Persons familiar with the process of class scheduling will understand the necessity of developing class schedules very early in the semester prior to the one for which the schedule is intended. This procedure made difficult the establishment of definite schedules for spring semester, 1958, television observation since the entire Instructional Television Project was contingent on the following factors:

1. That equipment and facilities could be purchased, installed and made operational by Spring Semester.
2. That the public school participation could be planned and the schools ready for telecasting by Spring Semester.

3. That College instructors could adjust their course organization to include the television observation experience if this service could be provided.

Based on the assumption that the above problems would be solved by Spring Semester, television receivers, delivered February 15, 1958, were installed in the following college classrooms:

LOCATION	ROOM(S)	NO. RECEIVERS	SCHEDULED CLASSES
Library	315	1	Education 170
	316	1	Education 104; 170
(These two rooms were reserved for television observation hours per week)			16
Centennial Hall	162	1	Education 150
(Classroom Building)	165	1	Education 150; 104
	166	1	Education 150; 104
	231	1	Psychology 150; 102
	234	1	Psychology 150; 102
	358	1	Psychology 112
Education Building	53	1	Education 104; 102
	153	1	Education 104
	157	1	Education 104
Multi-section Viewing room	55	3	Education 104; Health & Hygiene 101, 102.
Health & Hygiene	39		Health & Hygiene 101; 194
	13		Health & Hygiene 102, 194
	25		Health & Hygiene 194; 127

(See Appendix E for a complete viewing schedule)

The third major step in establishing the television observation program was organizing telecasts from the public schools, (see Calendar of Meetings, Appendix F).

The willing cooperation of the administrators and teachers in the public schools made it possible to organize, prepare, and begin telecasting on a day-by-day schedule just thirty-eight days after the initial planning session on January 15, 1958. During these thirty-eight days, teachers and classes were selected, teaching materials were prepared (see Appendix G for samples)*, coordination between the

*See Appendix Supplement for complete packets of materials; copies at the College and the State Department of Education.

instructors at the college and the public school teachers was established, and techniques and methods of presenting and utilizing the television observation experience were developed.

The mechanics of installing and testing the complicated television system, final necessary preparations for the teachers in the public school to be televised on a day by day schedule, and last minute administrative and technical problems, made it impossible to give the instructors any orientation to the television program before the first day of scheduled observation. Their willingness to learn the requirements of the new medium, to develop new skills in guiding television observation, and to encourage their students to adjust to a totally new method of observation, was an indication of their experimental attitude, and their professional competency.

The fourth major step concerned technical and operational aspects of the television program. This phase of the organizational plan falls into three categories: equipment, installation, and operation.

(See Equipment and Facilities, Chapter 1, Section 3)

Equipment

The equipment, after installation was utilized in the following way: the three remote cameras were mounted on pedestals and placed in strategic locations in the classroom. The lights were light-weight florescent units hung between the existing light fixtures in the classroom. The microphones were placed above the activity areas of the classroom. The remainder of the equipment was installed in a trailer unit, to be used as a mobile control room at the schools. The on-campus distribution system provided twenty-seven viewing stations (only seventeen were used during the spring semester), and the off-campus distribution system provided, through contract with the Pacific Telephone and Telegraph Company, two-incoming RF (audio-video) channels from the four public schools (See Television Distribution System Schematic) to the college, and one outgoing channel from the College to the public schools.

Open-circuit telephone channels from the four schools to each viewing station on-campus were provided to facilitate two-way communication between the college instructor and the operator in the mobile unit, in directing the camera operation for his viewing class.

Installation

The installation of the closed circuit television facility may be more clearly understood by a review of the following calendar:

Beginning Dates	Service	Completion Dates
12/17/57	Contract signed with Pacific Telephone and Telegraph Company for off-campus distribution system.	2/27/58 Telco system installed and ready for field tests.
1/16/58	Contract signed with Electrical Appliance Co., Watsonville, to pull cables through existing conduit on-campus	2/19/58 Contract completed
12/6/57	Bid awarded to Spencer-Kennedy-Laboratories to install a distribution system on-campus	2/21/58 On-campus Distribution system installed and ready for field tests.
1/2/58	Television Equipment received from KINTEL	2/14/58 Mobile unit installation completed.

Installation Time:	3 TV Technicians	624:	Manhours
	3 AV Technicians	346:½	"
	Total	970:½	

2/1/58	Equipment and Signal tests started at Horace Mann Elementary School	2/20/58 First equipment tests completed. First clear signal delivered over the distribution system 2/19/58.
3/4/58	Continuing field tests on equipment and distribution systems.	3/8/58 Field tests completed.

Total hours of testing: 49½

3/10/58	Began day-by-day telecasting from Horace Mann Elementary School.

Operation

The operational phase of the television observation program began on March 10, 1958. The equipment was turned on at 7:45 a.m., and transmitting of the observation program officially began at 9:30 a.m. According to the agreed schedule of operation in the public school it was necessary to move the remote equipment from classroom to classroom at the end of each

day of telecasting; with the exception of the move the first day, lights and microphones were provided for each room to be televised and left for the entire program at a particular school. An inspection of the following calendar will give some indication of the sequence of moves necessary in the elementary schools:

TABLE I

TELEVISION OBSERVATION SCHEDULE

HORACE MANN ELEMENTARY SCHOOL

Monday	Tuesday	Wednesday	Thursday	Friday
March 10 Willson	11 Pett	12 Brown	13 Willson	14 Pett (AM)
March 17 Brown	18 Willson	19 Pett	20 Brown	21 Willson
March 24 Pett	25 Brown	26 Willson	27 Pett	28 Brown

TABLE II

TELEVISION OBSERVATION SCHEDULE

SELMA OLINDER ELEMENTARY SCHOOL

Monday	Tuesday	Wednesday	Thursday	Friday
April 7 Barnwell	8 Turbeville	9 Marsh	10 Barnwell	No Telecast
April 14 Marsh	15 Turbeville	16 Barnwell	17 Marsh	18 Turbeville P.M. only

The operation required dismantling and assembling the equipment, and at Horace Mann Elementary School each second day the mobile unit had to be moved from one side of the school building to the other. A total of 74 man-hours by three television technicians was spent in this work.

Total operation for the observation program required two television technicians working in the mobile unit for

fifty-four telecasting days, for a total of 267½ hours in transmitting time. The total time the television equipment was operating, including warm-up and testing, was 382 hours. Total operation and equipment cost* per hour of transmission was $19.38 for the observation program.

The fifth major step in the organization of the Television Observation Program was to develop a method of evaluation by as many of the participants as possible. Evaluation records for the college instructors included: Instructors' ITV Television Diaries, and reports of evaluation meetings.

Evaluations by college students were based upon: pre-and post-tests developed from the course objectives; unsolicited statements contained in assignments concerning the total course; and an evaluation by the Education 104 students of field observation and television observation, giving advantages, disadvantages, and recommendations.

The results of all instructor and student evaluations appear in the separate studies of each course.

Evaluations by the public school teachers were obtained in the following manner: at the end of each observation period the participating teachers and the school principals were asked to write summary statements giving their reactions to the observation program by television as conducted at their schools. At Horace Mann Elementary School members of the College Elementary Education Department faculty and the participating teachers met at the end of the second week of telecasting from that school for an evaluation meeting. On subsequent pages the evaluations of the principals and teachers from the public schools are reported in full.

Discussion of each college course included in the Instructional Television Observation Program follows in succeeding pages.

SECTION 1

ELEMENTARY SCHOOL CURRICULUM AND OBSERVATION

The Instructional Television Observation Project began at Horace Mann Elementary School on March 10, 1958, primarily to provide observation experience for credential candidates regularly enrolled in Elementary Education 104, Elementary School Curriculum and Observation. The course is briefly described as follows:

*The equipment cost figures in this report are based on five year amortization.

"...Elementary Education 104, Elementary School Curriculum and Observation. A laboratory course combining modern theory of education with actual practice through guided observation and participation in two public elementary schools..." (College Catalog, p. 99).

This course is primarily oriented toward the teacher and teaching methods, but the student is also concerned with problems of child behavior, growth and development, and the school environment.

Areas of Concern

One of the most valuable experiences in the teacher education program at San Jose State College is that offered the credential candidate to observe an actual classroom in operation. Since the College operates no demonstration school, observation is entirely in the public schools in the area surrounding the College.* The rapid growth of the College has created serious problems in the teacher education program in the following area:

1. Increasing college enrollments have placed a burden on the public schools within practical traveling distance, to provide enough classrooms for observers.
2. Difficulty in obtaining sufficient situations where the observer is able to see the most experienced classroom teachers at work seriously reduces the efficiency of the teacher education program.

The developmental study in television observation was developed primarily to determine whether closed circuit television observation could be used to supplement field observation, thus alleviating some of the burden placed on the public schools. In addition, large groups of students could receive guided observation by a skilled college instructor, and the entire group could share the observation experience and discuss immediately what is seen and heard; thus, closed circuit television would not only help to alleviate some of the problems, but would add a new dimension to the teacher education program.

Scheduling

Education 104 was the only course in the entire Instructional Television Observation Project that could be scheduled late in the spring semester to take full advantage of televised observation from the public schools. This schedule was developed in the following manner: block viewing for ninety-eight students in five sections of Elementary Education was conducted in a large room in the

*For a statement by Dr. Lowell G. Keith, Head, Department of Elementary Education, of the need for television observation, see Appendix H.

Education Building. It was formerly the Little Theatre, capacity 300, converted as a classroom. Four 21-inch Conrac television receivers were installed, one on each outside aisle, and two at the front of the room. The students were required to attend television observation for two hours, from 9:30-11:30 a.m., twice each week for four weeks. Five elementary Education Instructors alternated in giving directed observation to the viewing students. In addition, the individual instructors were able to use the receivers in their rooms during class time for supplementary viewing.

Since the Elementary Education students had a required number of television observations scheduled, the first six weeks period of the observation project was devoted to meeting their needs.

The two elementary schools selected were: Horace Mann Elementary School, for viewing from March 10-28, 1958; and Selma Olinder Elementary School, for viewing from April 7-18, 1958.

Procedure

The method of observation used to televise classroom activity in the elementary schools for the College Teacher Education Program will be briefly described.

Methods of Observation. The participating teachers and principals in the public schools cooperated heartily with every phase of the program. While the Education Division instructors believed that it would be desirable to observe a given class for several days, the elementary school teachers objected to this schedule, not wishing to be observed by large groups for more than one day at a time.

At Horace Mann Elementary School three teachers rotated days in the following sequence:

Teacher	Room	Grade	Approximate Ages of Students
Mrs. Mabel Willson	E	6th	10 years 9 mo. to 12 years
Miss Aleen Pett	8	2nd	6 years 9 mo. to 7 years 8 mo.
Mrs. Merle Brown	15	4th and 5th	8 years 9 mo. to 10 years 8 mo.

The classrooms of these teachers were observed for four hours each day, and at their request all viewing was interrupted during recess and lunch hour.

At the end of three weeks, the program was moved to Selma Olinder Elementary School where a similar arrangement was made,

this time for two weeks.

Teacher	Room	Grade	Approximate Ages of Students
Mary Marsh	9	2	7 - 4 to 8 - 1
			Exception 1 8 - 7
Enes Turbeville	11	4	9 to 9 - 9
			Exceptions 2 10 - 1
			1 12 - 1
Thelma Barnwell	14	6	11 - 5 to 12 - 10
			Exceptions 2 13 - 2
			1 13 - 4

These teachers rotated teaching for television in the same manner as at Horace Mann.

Television observation was originally scheduled to begin on March 3, but due to technical difficulties, and the teachers' desire for an additional week for preparation the beginning date was advanced to March 10. During the week of March 3, the Elementary Education 104 students visited Horace Mann as an orientation to the school and became acquainted with the teachers and pupils participating in the televised observation. A visit to this school was practical because Horace Mann is located just two blocks from the College; the other three schools were not visited due to distance and time schedules.

Prior to television observation, each college student and instructor in the program received a packet containing:

1. A map of the school.
2. A seating chart of each room to be observed, giving location of each student (by first name), and the location of the cameras.
3. A map of the playground.
4. A schedule of each teacher's program for each day's observation.

Methods of Evaluation

As stated earlier, provision was not made for funds to be used in conducting research, but it was necessary that some measurement should be made of the response of all participants as a guide for future conduct of the program.

Instructors' Evaluations

Each college faculty member was given an "ITV Diary" in which he was asked to list such facts as conferences attended, how much he used television observation during class time, his impressions of the program week by week, the effect of the observation on him as an instructor and any comments and

criticisms not covered in the body of the Diary.

Students' Evaluations

Each student, at the beginning of the course, before television observation started, was asked to fill out a pre-test* designed to obtain an indication of his anticipation of what television could do when compared with field observation.**

On April 14, at the end of the Instructional Television Observation Program, the Education 104 students were given the same form as a post-test and asked to fill it out in terms of the television observation experience. In addition, the students were asked to fill out a different form on May 21, after they had completed their actual classroom observations, giving their opinion of the advantages, limitations, recommendations, and general comments for both the television observation and field observation experience.

Public School Teachers' Evaluations

The participating teachers in the public schools were requested to prepare summary statements concerning the televised classroom program conducted at their schools. These statements were to include advantages, disadvantages, suggestions, and recommendations for future use.

Results

Before considering the results of the findings reported for Elementary Education 104, or the following courses described in the Instructional Television Project for spring semester, it should be understood that these data, whether favorable or unfavorable to television observation, are qualitative in nature, and highly subjective.

Instructors' Evaluations. The Education 104 instructors participating in the television project were Dr. Clay S. Andrews, Dr. Donald R. Ferris, Mr. Kenneth A. Johnston, Dr. Tullye B. Lindsay, and Mr. Frederick M. Brandow. Each volunteered to participate in the developmental study. The instructors were requested to keep a record of conferences, amount of television observation used in class and to fill out a weekly questionnaire.

The fact that television observation was available during Education 104 class time was considered an "extra" to be used if the instructor felt it would be valuable at any time.

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*See Appendix J

**The instructions asked the student to compare closed circuit television observation with "other methods of achieving this objective"; every instructor but one assumed that "other methods" meant field observation. This report assumes that the students were likewise comparing closed circuit television observation with field observation.

Responsibility for guiding observation for block viewing was assigned in the following manner:

TABLE III

Television Observation Schedule

College-Elementary Education

Week	Monday	Tuesday	Wednesday	Thursday
March 10	3-10-58 Andrews	3-11-58 Andrews	3-12-58 Johnston	3-13-58 Brandow
March 17	3-17-58 Ferris	3-18-58 Lindsay	3-19-58 Johnston	3-20-58 Andrews
March 24	3-24-58 Brandow	3-25-58 Andrews	3-26-58 Ferris	3-27-58 Andrews
April 7	4-7-58 Lindsay	4-8-58 Andrews	4-9-58 Johnston	4-10-58 Brandow
April 14	Cancel 4-14-58 Ferris	Cancel 4-15-58 Andrews	Cancel 4-16-58 Lindsay	Cancel 4-17-58 Andrews

Dr. Andrews assumed responsibility for twelve hours of guided observation, because of his prior experience with this method in the early experimental studies; Doctors Lindsay and Ferris guided observation for four hours each, and Messrs. Johnston and Brandow each directed observation for six hours, making a total of thirty-two hours of guided observation, sixteen hours for students meeting on Monday and Wednesday, and an equal number of hours for students meeting on Tuesday and Thursday.

As has been previously stated, television receivers were installed in the classrooms for these instructors to use during class time if they wished. These classroom observations were to be reported on a "Weekly Questionnaire" included with other requested information in the "ITV Diary". It must be concluded by the paucity of requested information recorded in the "Diaries" that this method of collecting data must be abolished for future studies.

A facsimile of the "Weekly Questionnaire" follows:

1. Approximately how many hours did you use instructional television in the classroom this week?

2. Approximately how many students were involved in direct classroom viewing?
10___ 20___ 30___ 40___ 50___ 60___

3. Approximately how many students were required to view in the "free" viewing rooms?
(Library 315 - 316) _____.

4. Were any operational difficulties noted during the week?

5. If operational difficulties were encountered, did they interfere with or distract from the value of the presentation? Yes___ No___

6. In general, did the instructional television available during the week fit your instructional needs? Yes___ No___

7. Did you find the students generally interested in the viewing experience? Yes___ No___

8. Did you notice any unfavorable reactions to the television viewing? Yes___ No___

9. Were you able to schedule specific kinds of observations for classroom assigned "free" room viewing?

10. Is your general reaction at this time favorable or unfavorable as to the instructional value of television in your course?

Comments:

CHART I - PRESENTS A COMPOSITE PICTURE OF ALL THE INFORMATION REPORTED BY THE INSTRUCTORS ON THE WEEKLY QUESTIONNAIRES - EDUCATION 104

Instr. I	Instr. II	Instr. III	Instr. IV	Instr. V
3/10/58 30 min. No troubles. Favorable.	30 min. Sound poor. Picture went off. No lesson plans from teachers. Camera doesn't cover whole room. Black-and-White. Unfavorable.	No TV	1½ hrs. Sound poor. Program not complete. Unfavorable comments. Camera doesn't cover. Black-and-White. Unsatisfactory.	9 hrs. (None in class.) Very few unfavorable comments. Getting used to TV. Too soon to judge.
3/17/58 No TV	No TV	1 hr. Didn't fit. Students not interested. Cameras don't cover room. Black-and-White. Unfavorable, but gives common experience.	½ hr. Sound not clear. Unsuited to lesson. Students lost interest. Class would prefer direct observation.	8 hrs. (Two in class.) Greatly improved quality. TV fit lesson, was interesting, showed vital situations and natural class atmosphere. Operating procedures better. Traditional method better at this stage--TV not as interesting as traditional method.
3/24/58 No TV	30 min. Students not interested. Block observation too much--limits effectiveness in class.	No TV Unfavorable.	No TV	6 hrs. Was fitting and interesting. No unfavorable comments, favorable for many purposes. General progress in: 1. Operational technique. 2. Students ability to see and understand. 3. Teaching techniques. More interesting than traditional. Favorable: 1. Time saving. 2. Less expensive. 3. All students see same thing.
4/7/58 No TV	No TV Direct observation. More than enough.	No TV	No TV	8 hrs. TV fitting and interesting. Some students tired of block observation. Difficult to follow individual students.
4/14/58 No TV	No TV	No TV	No TV	2 hrs. Much improved. Fitting and interesting, and students interested although some are tired. Good basis for discussion.

An inspection of the preceeding chart indicates that all of the instructors used television observation to some degree during class time. The questionnaire responses, and the comments reported on following pages, assumes agreement on these points:

1. The amount of lecture material that had to be covered lessened the value of random observation during class time when the random viewing could not be correlated with the topic at hand.

2. Technical difficulties such as audio transmission, and inexperience with the operation of television receivers, were frustrating to the instructors.

One of the chief targets for criticism was the block observation, and it was criticized for several reasons:

1. Two hours was believed to be too long a viewing period.

2. The combined presence of large numbers of students from several classes inhibited discussion.

3. Audio difficulties were bothersome and upsetting to some students during a long session.

4. The routine school classroom situation often did not hold the interest of the college students, especially while the instructors and students were exploring a totally new technique of observation.

It would appear that the conclusion to be drawn from a study of the above points is this: the initial part of the program was fraught with technical and psychological difficulties; some instructors were left with an unfavorable impression. As the weeks went by, however, those instructors who continued to explore the medium began to find ways to use television and the attitudes became more favorable, if not to the Project in its present stage of development, at least to the future of instructional television.

The "ITV Diary" requested comments, suggestions, and recommendations on the television observation program which were not included in the "Weekly Questionnaire". These comments follow:

Instructor I.

"General Comments. The experience with television teaching was valuable to me. It unfolded as it progressed with both students and instructor it was a 'learning process'. There appeared to be increased skill in understanding as the experiment progressed. On the basis of this experiment, it should serve a unique function in teacher education."

Instructor II.

"I don't believe the "Block Observation" should be continued. I would like to try television observation in my regular class session on a limited basis for the first two weeks next fall. Each instructor should be free to use it in his class sections--when and if it fits a specific need.

I feel television has a contribution to make to education, but it just doesn't replace the actual field experiences for our 104 people. However, I feel we should be able to use it effectively for specific demonstrative purposes at times."

In addition to the individual comments the Education 104 instructors agreed upon and submitted the following statement:

"The instructors in Education 104, Elementary School Curriculum and Observation, expressed the feeling that instructional television, being another audio-visual aid to instruction, has strengths and limitations just as do filmstrips, motion-picture films, tape-recordings and other audio-visual devices. Since television realistically should be seen as an adjunct to good instruction, the ways in which it is to be used, and the extent to which it is used, should be left to the professional judgment of the Instructor. This implies intensive pre-planning of experiences calculated to fulfill the instructors' educational goals."

Summary Statement Concerning Instructors' Evaluations

In general the data available are inconclusive as far as showing more than critical acceptance of television for observation by three of the five instructors reporting at this stage of the developmental study. Although the speed with which this program was initiated has been mentioned several times in earlier chapters of this report, in fairness to all participating instructors, and particularly to the Elementary Education instructors, the students, and the Instructional Television Project in general, the following points should be re-emphasized:

1. It was not until late in January that the instructors could be sure that it would be possible to initiate the observation program in March. This time factor left them scarcely two months to prepare for a method of instruction for which, with the exception of one instructor, they were totally unfamiliar.

2. Television, to the inexperienced, can be an anxiety-producing medium, with the puissance to intensify unrealistic fears, and emotionally charged negativism, as well as unrealistic emotionally charged favoritism. This situation is not unique with San Jose State College; it is reported in current research conducted over the Country from the carefully controlled experimental studies at Pennsylvania State University to the technical, on-the-job training project currently in process at I.B.M. in Poughkeepsie, N.Y.,

and certainly none of the reporting agencies was foolhardy enough to initiate in forty-seven working days a project with the scope and personnel involvement of the current Instructional Television Project at San Jose State College.

3. No findings accrued in the fifty-four days reported should be construed as failure; there are numerous areas in which trends indicate a successful television operation. There are areas of doubt where further experience is needed, and constructive methods of working with the instructors must be developed to produce a well organized, mutually acceptable observation program. Plans are currently under way to develop a more cohesive instructional program, more realistic scheduling, and more exact measuring instruments for comparisons and evaluations for future reports of the developmental study.

Student Evaluations

Student evaluations were based on the results of three testing instruments: a pre-test, a post-test, and an opinionnaire based on experience after television observation and field observation. The results of these tests are described in the following pages.

Pre-Test of Television Observation

The pre-test was administered the first week in March, prior to any television observation experience. The purpose of the pre-test was to obtain some evidence of student anticipation for the observation program.

The pre-test was developed from regular course objectives, covering nine broad areas, and five sub-areas, by the Elementary Education instructors for the observation program.

Instructions to the students for rating the pre-test and post-test are shown in Appendix M.

TABLE IV

PRE- AND POST-TEST RESULTS
ELEMENTARY EDUCATION 104

		POS	1	2	3	4	5	NEG
1. To recognize the role of the elementary school in the community and in the lives of children.	PRE	75.3%	2.6%	15.5%	57.1%	19.5%	5.2%	24.7%
	POST	50.0	0.0	4.9	45.1	43.9	6.1	50.0
1a. To observe the several ways specific schools react with specific communities.	PRE	57.3	1.3	17.3	38.7	32.0	10.7	42.7
	POST	32.9	1.2	7.3	24.4	42.7	24.4	67.1
1b. To observe children participating in all the aspects of the school-- the classroom playground, cafeteria, library, etc.	PRE	14.6	4.0	6.6	4.0	57.9	27.6	85.5
	POST	6.2	1.2	2.5	2.5	39.5	54.3	93.8
2. To participate in guided observation of characteristics of growth and development as these influence teaching and learning activities.	PRE	67.9	11.5	34.6	21.8	29.5	2.6	32.1
	POST	37.8	3.7	7.3	26.8	54.9	7.3	62.2
2a. To provide opportunity for 104 students to select one or more pupils to study, in a situation where the 104 students can amass data and get perspectives of pupil behavior.	PRE	32.5	3.9	13.0	15.6	39.0	28.6	67.6
	POST	18.3	1.2	6.1	11.0	35.4	46.3	81.7
3. To gain an overview of the elementary school curriculum and its organization.	PRE	73.1	6.4	28.2	38.5	21.8	5.1	26.9
	POST	62.1	2.4	14.6	45.1	28.0	9.8	37.8
3a. To remain in one situation a sufficient length of time to give some perspective to these points.	PRE	53.3	5.2	18.2	29.9	40.3	6.5	46.8
	POST	25.6	0.0	4.9	20.7	47.6	26.8	74.4
4. To insure 104 students having a variety of experiences with children before planned lessons are taught.	PRE	55.1	14.1	20.5	20.5	32.1	12.8	44.9
	POST	29.2	2.4	12.2	14.6	36.6	34.2	70.8
5. To provide opportunity for observing and planning lessons.	PRE	66.7	2.6	20.5	43.6	26.9	6.4	33.3
	POST	41.5	2.4	4.9	34.2	32.9	25.6	58.5
5a. To observe resident teachers plan and teach lessons.	PRE	56.4	6.4	10.3	39.7	34.6	9.0	43.6
	POST	44.4	2.5	8.6	33.3	30.9	24.7	55.6
6. To understand and apply interrelationships of facts, skills, understandings, attitudes, and appreciations in the development of learning experience.	PRE	70.5	6.4	20.5	43.6	25.6	3.9	29.5
	POST	48.8	0.0	6.1	42.7	40.2	11.0	51.2
7. To study the application of audio-visual skills and techniques to the improvement of the teaching-learning situations.	PRE	82.0	12.8	28.2	41.0	15.4	2.6	18.0
	POST	69.5	2.4	18.3	48.8	25.6	4.9	30.5
8. To participate, as a 104 class, in some common experiences.	PRE	90.8	44.7	38.2	7.9	9.2	0.0	9.2
	POST	96.4	31.7	47.6	17.1	2.4	1.2	3.6
9. To report and discuss, with ever increasing professional competence the many facets of observation and participation.	PRE	83.3	12.8	47.4	23.1	15.4	1.3	16.7
	POST	68.7	8.4	15.7	44.6	25.3	6.0	31.3

The post-test was identical to the pre-test, and it was given the last week of April after the Instructional Television Observation Program had ended for the Education 104 students. The results of the tests are reported as a single table to facilitate comparisons between the two tests.

There were 98 participating students in 5 classes who took the tests. The pre-test and post-test of a given student were matched and all those that could not be matched (some took one but not the other, some did not sign the tests, etc.) were set aside. It was decided that no significant information could be inferred from the matched tests that could not also be drawn from the whole body of tests, so these were re-scored.

The data are presented as follows: the item (course objective) on the test will be followed by the combined responses, expressed as a percentage, of all the participating Education 104 students. The scale (see Table IV) from left to right is: 1 - television is "highly superior" 2 - "superior" 3 - "the same as" 4 - "inferior" 5 - "very inferior" to other methods of achieving this objective. It was felt that a response of 1, 2, or 3 could be considered a favorable response, and the first column ("POS") gives the total of responses 1, 2, and 3. The last column ("NEG") is the total of responses 4 and 5.

Discussion of Results of the Pre-and Post-Tests

A study of Table (IV) showing the results of the pre- and post-tests shows several interesting factors. Attention is drawn to the fact that there is a negative shift on each item when pre-test is compared with post-test. This is possibly an indication that:

1. The anticipation (pre-test response) was high, partly because of the novelty of television and the readiness to accept a new medium. This statement is made in the light of the fact that on certain items where a low initial response was expected (e.g. #1 and 1a-television has no practical way of allowing the study of the community) the response was favorable to television.

2. There was a general disappointment (post-test responses) occasioned by technical difficulties and the unexplored potentials of television during this orientation period.

Of 14 objectives on the post-test 50% or more of the students rated five of these as objectives that television could fulfill at least as well as field observation. The five were #1, #3a, #7, #8 and #9.

The following test items are admittedly subjectively evaluated. A great amount of effort was expended in trying

to evaluate these data objectively, but this was given up when it became apparent that there did not seem to be any logical relationship between the ratings and the items. The best that could be done was to attempt to second-guess the students, and describe what could "possibly" have influenced the ratings.

Item #1b was scored lowest in both pre- and post-test possibly because some students realized the difficulty and expense of locating cameras in diverse locations, possibly because of the realization that it would be difficult to pick up the correlative conversations in such a set-up, and possibly because the students believed that even as observers they would be allowed to participate in games and other activities with the children and thus gain experience in dealing with children.

Item #2a was scored second lowest in both pre- and post-test even though television seems to have a potential here. The post-test results are diractly due to the rotation of classrooms in that it was not possible to concentrate on <u>one child</u> for more than one day without interruption.

#3a reflects a similar desire to remain in a classroom longer than one day.

The wording of #4, the fourth lowest, was perhaps unfortunate for this purpose, because some students felt that television was a "variety of experience" while others felt that one could not have an experience <u>with</u> children via television.

Regretfully, the tests were not as satisfactory an instrument as could have been evolved under less pressure of time.

Because of this, an additional questionnaire was constructed and given to the students after they had completed both the television observation and the field observation. In this questionnaire, the students were asked to make statements concerning the relative strengths and weaknesses of television observation and field observation. Representative samples were selected for the body of this report and additional comments may be found in the Appendix Supplement.

STUDENT 1

A. <u>Strengths</u>.

Attention may be called to certain situations by the instructor which might be otherwise overlooked. Could be an instruction period on observation. This could be a time when the student is instructed by use of television in observation procedures, techniques, and values.

B. Limitations.

It is limited in that attention cannot be focused upon individuals for too great a time. There is no opportunity to see the actual planning that goes into a lesson and the evaluation of that lesson. There is no follow-up on the lessons presented. In spite of the vast amount of work put into the project it still looked piece-meal at times.

C. General Remarks.

Television observation could be of value to the student if there were more guided observation and discussion to go along with it. The large groups of observation students in television observation made discussion almost impossible since each student's interest was not in the same sphere.

D. Recommendations.

Why not leave each observation class as it is and let each instructor guide his own class in their own room in television observation? It seemed like we had ample television sets for something of this kind. Make the television observation sessions an introduction to actual observation on the field. What should one watch for? Why was this done? How should the observer integrate himself into the picture without too much self-consciousness or confusion when actual field observation begins?

STUDENT 2

A. Strengths.

1. Convenience of place for observing; no transportation problems.
2. Being able to focus attention on one activity of instruction or on one student to watch reactions.
3. See a variety of classrooms and teaching methods in various grade levels.
4. Education of the masses -- of large group.
5. Being able to tune in and out at desired times.

B. Limitations.

1. Lack of being able to feel and be a part of the class and school environment.
2. Seeing pupil-teacher, teacher-teacher, and teacher-parent relationship.
3. Seeing individual children in various situations. (For example: the children on the play ground and in out-door activities.)

4. Seeing actual coloring and size of classroom.

5. Lack of ability of observer to talk with teacher about reasons for activities of individual pupils.

C. General Remarks.

1. I found television very interesting and when it is developed more I can certainly see its place in observation of classes.

2. Change of schools - very good.

3. Taking trip to school and having classes being observed come to College was good.

4. Hearing their opinions was valuable.

D. Recommendations.

1. Use of television more in the class meetings.

2. Perhaps putting group observation of television at the end of semester after actual experience in the field. Along with television in the class meetings.

3. Make television observations in smaller rooms with fewer people with an instructor near by.

4. Have television available at different times of the day to see a variety of programs.

STUDENT 3

A. Strengths.

Television observation is good in that it permits the observing class as a whole to discuss and evaluate what has been seen. We share common experiences and can come up with more valid solutions to problems in that we all contribute suggestions.

B. Limitations.

We may be more easily distracted when attention must be narrowed down to a tiny screen in one small part of the room. The atmosphere is entirely different. We aren't part of the classroom on television, but of our own classroom sharing a common experience. We cannot look around the room at our own free will to pick up what may be going on. We must look in the direction the cameraman decides upon for us.

C. General Remarks.

It is hard to compare television with actual classroom observation. They are so different. It is very hard to feel the classroom atmosphere while sitting in a fairly noisy room and trying to decide which television is working better today to focus attention upon.

D. Recommendations.

Television can be perfected in many ways. When noise, screen imperfections, etc. have been perfected -- this will aid considerably.

STUDENT 4

A. Strengths.

I think it will be a good introduction into the school system, and observation. In other words to break the ice.

B. Limitations.

Too much repetition. Very dry and boring. After you have observed once or twice, all the others seemed the same. Our view was limited. We were forced to see only what the camera let us see. It was an unnatural situation. Too well prepared. Could not determine the growth and development of the pupils.

C. General Remarks.

I think television is a good medium, but don't let it be in the auditorium with other classes. It definitely has limitations.

D. Recommendations.

I recommend that it be shown in the individual classroom, and as a teaching device for the instructor. Use two cameras, one showing one thing, the other showing something else in the classroom and two television sets at the same time so we can watch what is going on in another part of the class.

STUDENT 5

A. Strengths.

1. It gave 104 students common experiences to discuss and observe.

2. It introduces the observer to the classroom routine without actual presence in the room.

B. Limitations.

1. Although it may be a good method of introduction to 104 students, it surely can't take the place of actual personal observations.

2. You are not able to discuss ideas with the resident teacher, nor is she able to give you tips or suggestions.

3. You are not able to get the true feeling of the class, the relationships between students - teacher - observer, use the actual text, see what the children are doing, observe how teacher handles problems, etc.

C. General Remarks.

I love every minute of the direct classroom observation. I feel that I have learned more there that will be beneficial to me than in any other class I have ever had. It is too bad that I couldn't have had a whole semester in the classroom rather than have the television.

STUDENT 6

A. Strengths.

Has value in showing actual methods in practice. The television can definitely be used to show specific techniques of the teacher. I learned many new methods and techniques from the teachers observed, and collected many ideas for charts, bulletin boards and other teaching aids which were used successfully. Provide a common experience to start from for all observers.

B. Limitations.

Since the television observation is quite "concentrated," there should be more guidance (what to look for as far as methods). Since the camera picks out specific incidents it is hard to build a complete concept of the class - seems disconnected; seems to limit the real classroom feeling (contact) with the pupils.

C. General Remarks.

In general, I believe both have their value and could be used to provide an adequate program. The television is an excellent introduction to observation, but should not last as long as our last session. Actual contact with pupils and students is definitely needed to provide the student-teacher with an opportunity to form a concept of teaching as well as an opportunity for actual practice needed for student teaching.

D. (I believe the staff has made an excellent start, which should develop into a dynamic program within a year or so.)

One class of Education 104 students was asked to write on the topic "What Education 104 meant to me." Of eighteen responses to this, seventeen included comments on television observation. It is pertinent to include some of these responses at this point.

STUDENT 1

"The television experiment has been very interesting. I think it has many possibilities of being a valuable experience. It certainly has improved considerably since the first day we watched it. The noise that the sensitive mikes picked up and magnified bothered me considerably for a while, but I think a gradual adjustment to this and the effort on the part of the television crew to cut down the noise when possible has eased this tension. The teachers that

have been viewed are obviously trying hard to make it easier for us to understand what is happening in the classroom. I have enjoyed being able to discuss with others in the class as the observation is taking place. I think it would be of great value if we could talk to the teacher in person and, if possible, visit the classroom once before we view them."

STUDENT 2

"Although there have been disadvantages in the experimental television observations (primarily technical and mechanical difficulties) - certainly, there have been enumerable advantages and sources of rich experiences. And certainly, it has been a great learning experience for all involved - we the observers, faculty, technicians, children, classroom teachers. Possibly - one of the greatest advantages of this program is the opportunity to view and learn from many different situations. Those of us in the kindergarten - primary levels have been given the chance to 'go into' the upper classroom - an experience which we would not ordinarily receive. The teaching and learning situations are of exceptionally high qualities. We are watching excellent teaching and guidance, and the natural situation provides for learning to be at its highest. Also, discussing and thinking with others observing the same classroom provides for many wholesome and beneficial experiences. Probably, the one thing which all of us have missed has been the personal contact with the children and teacher. We cannot feel that we really know the children - their needs, their differences. Certainly, this will come in time as improvements are being made with the mechanical aspects. I believe there was one class session when we discussed the observation on television. I felt the time spent on this was indeed a learning situation."

STUDENT 3

"Since observation by television is a big part of the course, maybe that would be a good starting place. At first, I must admit I was a little discouraged with the whole 'shebang," as were we all. As I've stated before, I felt that I was being robbed of a real experience, and instead of watching the real thing, I was looking through a microscope, as it were. At this time I would like to revise my ideas a little for this experiment has taken on a different meaning. I feel that it was quite an experience since we saw it being developed from the beginning stages. Although seeing the rough spots and the disadvantages made it a little discouraging, it is a tremendous satisfaction to view the improvements that are being made. Just think! We are participating in a big experiment which will no doubt change some points in the Teacher Education program."

Discussion of the Students' Comments

Aside from the convenience and very real saving in transportation time and expense, students felt that the strongest aspect of the television observation program was that it gave them a common observation experience under the

guidance of a skilled instructor. This, they felt, allowed them to discuss more intelligently the various aspects of observation and to base the discussion on more evidence, since many people were observing the same thing.

With television the students were able to see a greater variety of classrooms and teachers at different grade levels than is possible with field observation.

Under "limitations" the lack of contact with the children, the inability to participate, to get the "feel" of the classroom, and to talk with the teacher about specific children, lesson planning, and behavioral problems were among those most frequently mentioned.

The audio difficulties were great at times since the microphones pick up the sound of shuffling feet and flapping window shades as well as children's voices, and this was disturbing to many students.

The recommendations of the students included using television in class time to gain the advantage of small discussion groups; using television as an "introduction to observation" during which the instructor could point out what to look for and why; cutting the block observation to two weeks, viewing fewer classrooms, but viewing them for several consecutive days; and using one channel for a continuous view of the whole classroom and another for close-ups.

Perhaps the written comments of the students indicate better the strengths and weaknesses of the orientation period and the direction toward more satisfactory utilization.

The Elementary School Teachers Evaluations

The evaluations made by the teachers in the elementary schools after the Instructional Television Project was concluded, are reported in their entirety:

HORACE MANN SCHOOL

April 10, 1958

EVALUATION OF TELEVISION PROGRAM

Principal - Mary Gurkovich

Participating teachers:

1. Mrs. Mabel Willson - Sixth Grade
2. Mrs. Merle Brown - Fourth and Fifth Grade
3. Miss Aleen Pett - Second Grade

1. Reasons for extra remuneration.

a. Extra work — Hours

Mrs. Willson 60
Mrs. Brown 55
Miss Pett 52 - 41 minutes

Mrs. Brown had the additional help of her student teacher and her room observer, as well as Mr. Brown.

Mrs. Willson reports the assistance of her husband.

Miss Pett reports the assistance of her mother.
This was inadequate. Additional help should be provided.

b. Teacher pressure.

1. No recesses and lunch hour due to necessity for preparation.

2. Change in yard duty schedule resulted in heavier duties.

3. Social activities of teachers were curtailed.

4. There was a strain on teachers to keep things moving and to get materials ready.

5. Evaluation of teachers methods and personality by professors and students.

6. Teachers spent their own money for additional material to enhance lessons.

7. We feel that good relations with our faculty were impaired.

2. The Effect on Children

a. Strain

1. Lights
2. Ventilation
3. Trying to keep quiet
4. Talk loud enough for people to hear
5. Too many hours in one day.

Continued Evaluation of Television Program.

a. Weak children were not able to give their usual quality of work.

b. Most children enjoyed the experience.

c. Great let-down following day.

d. Most children responded in a normal way.

3. College Faculty and Students

a. College instructors should familiarize themselves with classroom and courses of study.

b. Students should visit classroom.

c. Should have coordinator from Education Department to direct cameraman in trailer. (He should be very familiar with all classrooms on television).

1. One picture should always show whole room.

d. Television should be used as a visual aid when it is needed in the various courses.

e. Students should not watch for more than one hour. (The next period could be used for discussion.)

f. It has been noticed that students read papers, when bored and not interested in the program. (What could be done to improve this?)

g. Observation should coincide with program of resident teacher.

4. Audio Visual Department

a. Teachers should be notified one semester in advance of participation.

b. Objectives need to be more specific.

c. Length of time for children participating should be adjusted according to differences in age and maturity.

d. Enough college classes should be watching to warrant the classroom teachers participation.

5. Horace Mann Administration

a. Many conferences were held.

1. Preliminary meetings with college, central staff and Horace Mann Faculty.

2. Orientation meetings between teachers and college personnel.

3. Pre-planning with teachers.

4. Evaluations.

a. With teachers daily.
b. With college staff.

5. Coordinating program with college was a continuous job.

b. Orientation of college students to Horace Mann was held for three mornings.

c. Revision of school routines and supervision program was necessitated. Entire faculty was involved.

d. Materials were supplied to teachers for above normal program demands.

e. Public Relations.

Visitors came daily. It was necessary to devote time to escorting and relaying information pertaining to program.

ADDITIONAL COMMENTS: (May 8, 1958)

Participation in the television program gave us the opportunity to establish better relationships and understandings with television personnel and education faculty members of the college program in terms of student needs.

It also gave us understanding of college faculty problems in relation to curriculum program.

Parent reaction to program was favorable.

It is our opinion that the television program could be successful if aspects of this report previously submitted were incorporated in subsequent programs.

Assistance was contributed to television teachers by three members of the Observation 104 class as follows:

Mrs. Willson	27 hours
Mrs. Brown	42 "
Miss Pett	41 "

SELMA OLINDER ELEMENTARY SCHOOL
May 5, 1958

PARTICIPATING TEACHERS' EVALUATION OF THE CLOSED CIRCUIT TELEVISION OF ELEMENTARY SCHOOL CLASSROOM ACTIVITY

General Impression

Having a class work before television cameras was certainly a rare opportunity for the children and especially for the teachers. Naturally it must be considered an honor and a challenge to have taken part in the early phases of this use of educational television. Of course this effort to give further background to teacher candidates is and will be continuous. And its progress will be based on honest evaluation, imagination and hard work.

Effect on Children

Even the children felt a sense of responsibility toward this

goal. They were interested and tried hard to do their best in all respects. For the most part they were successful; however, in some instances, an entire school day was beyond their capabilities of control. The strains of anticipation and of undergoing made the end of the day somewhat of a relief. The atmosphere for their learning had deteriorated measurably.

Effect on Teachers

Beyond a doubt, this experience also had its effect on the teacher. Preparing and carrying out a normal classroom schedule in front of television cameras is very difficult and requires a great deal of thought, work and concern. Four hours of this type of teaching in one day is a major effort.

Relationship with State College Personnel

The support and the aid given by the representatives of the College was a big help. Any item or information requested was quickly supplied by Mrs. Martin and her co-workers. Clay Andrews in his role was a bulwark of understanding, patience and thoughtfulness. The compliments and considerations received from the instructing staff and others were immensely appreciated. Our daily contacts with the technicians showed them to be friendly and efficient. Chief in their concern was getting the best picture possible. On a few occasions, however, it was necessary for us to do such things as re-wire windows more securely against the rain and vandals, to lock a door left unlocked and to put classroom furniture and decor back in place after they found it necessary to move them.

Equipment

Any unusual furniture or equipment in a classroom will attract children's interest; the cameras and the lights were hardly an exception. Seeing a classroom so well lighted was a pleasure. And the cameras weren't too distracting except from sounds made as they moved from one view to the next. The distortion by the microphones of ordinary classroom sounds and noise from the nearby street made it necessary to employ abnormal action as remedies. Children were asked to move and act with greater concern for noise and the windows were closed. Consequently room temperature rose and classroom control became more difficult. Once again the picture we were attempting to portray was inaccurate.

Conclusions and Recommendations

The telecasting of classroom activities can be called a success in spite of the problems and limitations involved. If the primary purpose of this program is to further acquaint large numbers of teacher candidates with the classroom, then the focus point is the teacher and her classroom. If she faces a strain, serious consideration should be given to remedy al phases of the situation. Not all teachers are qualified for the role of influencing teachers to be. Usually those chosen have other important responsibilities in the school, within the district, and toward the profession as demonstration teachers, resident teachers and as members of curriculum

and other committees. Given due consideration, they can continue to provide much toward the advancement of the profession.

In an effort to bring about a program other than experimental, these straightforward recommendations are honestly made with the realization that they may be eventually rather than immediately attained:

1. Give greater consideration to the major role played by the classroom teacher by:

   a. Arranging a more precise schedule of viewing. Use each minute of the program she has worked so hard to prepare; optional viewing is a waste of her efforts and energies.

   b. Asking her to spend less time than four hours each day in front of cameras. (Perhaps one-half of a school day should be the maximum).

   c. Allowing her more days off between telecasting days.

   d. Increasing the two-way communication between the teacher and the college instructors.

   e. Taking steps to insure that the reception is viewed only by college students in a classroom situation.

   f. Providing an adequate monetary compensation for the extra efforts rendered by the teacher. (Some consideration also should be given to awarding professional growth or other units to the teachers involved).

2. Give more attention to the protection of school buildings and classrooms. (Such as removing nails from woodwork or putting in more permanent fixtures; put furniture back in place when it is necessary to move it; closing and locking doors and windows; taking care not to disturb room decorations).

3. Give more thought to the length of time technicians are asked to focus on one child. A few moments after the child becomes aware, his actions are other than normal.

4. Equip classrooms with sound-proofing so that windows may be opened for ventilation, especially on hot days. (Even if windows are open and the shades are closed, circulation of air isn't sufficient enough to permit adequate ventilation. Then too, the shades flap noisily in the draft.)

5. Send classroom teachers an evaluation of the general technical impressions and suggestions, and a list of the specific uses to which their efforts were put.

6. Make up a form to be used for the evaluation of this program.

SECTION 2

THE LEARNER

The second group to be organized into the Instructional Television Observation Program was Education 150, The Learner. For this group, emphasis is on understanding pupils in public schools, with special attention given to the problems and principles of learning. In this course students make a series of directed observations of pupils in several stages of maturity in elementary and secondary levels. Television observation at the elementary level (see Education 104, pp. 39-78) was used by Education 150 in directed observations. This group starts observation at kindergarten-primary grades and advances through high school.

Education 150 is described in the following manner:

> Education 150, The Learner. Study of youth and the learning process. Emphasis is given to the secondary-school teacher's responsibility in the areas of growth and development, mental health, learning theory and techniques, evaluation, and guidance. Observation in elementary and secondary schools and in youth groups form a part of the course....(1958-59 Bulletin-General College Catalog, p. 115).

Areas of Concern

Education 150, The Learner, is a course given by the Department of Secondary Education to acquaint students with problems in the learning process. As such, it is directed mainly toward the pupil and not the teacher, although the learning process cannot be understood except in the context of teacher and classroom.

The observation requirement of Education 150 is somewhat different from that of Education 104 in that eight to ten observations, each one period long, are required. These observations are usually distributed as follows: two at the k-p level, two at the elementary level, two at the junior high level, and two at the senior high level. This may require observation in as many as four different schools and eight different classrooms. The observations must be made on different occasions. In the secondary teacher education program, obtaining enough public school classrooms for college student observers is as pressing a problem as it is for elementary education.* Since it is not practical for more than one or two students to visit a classroom at one time, finding suitable situations for these observation experiences has required traveling from 30 to 60 miles from the college campus to distant schools.

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*For a statement by Dr. G. W. Ford, Head, Department of Secondary Education, on the need for television observation, see Appendix I.

Since observation was at all school levels, the Education 150 instructors believed that they could profit by whatever observation was going on for Education 104, and in this way give their students the benefit of some directed observation early in the spring semester.

Scheduling

A schedule for directed instructional television viewing was conducted for students in Education 150 for a three week period starting April 14, 1958:

Day	Hour	Room	Instructor
Monday	9:30 - 10:30	55 Ed.	Woodward
Tuesday	1:00 - 2:30	315 Library	Stafford
Wednesday	10:30 - 11:30	55 Ed.	Auchard
Thursday	1:00 - 2:30	315 Library	Coffey

All students in Education 150 classes were invited to view during these hours.

The cameras were set up at Selma Olinder Elementary School on April 7. The week of April 7 was the last of the four weeks scheduled for Education 104, and Education 150 began directed observation at Selma Olinder on April 14. Following the week of April 14 the cameras were moved to Roosevelt Junior High and a major part of the observations were concluded after three weeks there.

Most of the Education 150 instructors made television observation an optional assignment; one instructor required television observation, however, and instead of requiring eight field observations, he required six field observations and four television observations.

The San Jose Senior High observation was late in the semester and while this was used, the use was not structured.

All the participating instructors used television observation during class time in varying amounts and with varying reactions.

The unscheduled viewing room Library, Room 315, was used by the Education 150 students for both directed and undirected observations.

Procedure

The method of observation used to televise classroom activity in the elementary schools was the same for the secondary schools, with the exception that the cameras were not moved at the end of each day. This gave the secondary students an opportunity to observe the same classes for as long as three days before a new classroom was used.

At Roosevelt Junior High School four teachers participated in the Instructional Television Observation Program:

Teacher	Room	Grade	Subject
Mrs. Phyllis Morris	209	7th	English
Mr. W. J. Allman	209	8th	Mathematics
		9th	Algebra
Mrs. Kay Taix	113	7th	English
		7th	Social Studies
Mr. Walter S. Hoshaw	210	7th	Art
		9th	Art

The observation program at Roosevelt Junior High School was from April 21 through May 9, 1958. The equipment was then installed at San Jose Senior High School for the last three weeks of observation in the spring semester, from May 12 through May 29, 1958.

At San Jose Senior High School, three teachers in five subject areas were televised:

Teacher	Room	Grade	Subject
Mr. John B. Ogden	46	Junior	Biology
		Senior	Physiology
Mr. Clarence Sloetzer	44	Senior	Social Studies
Mr. Richard B. Williams	47	Senior	Physics
	59	Senior	Chemistry

At both schools use was made of one of the studio type cameras. At Roosevelt Junior High School the studio camera was used in the art classes, to fill in two periods when classes were not meeting in the regular television classroom, and the physical arrangement of the art room, and type of class activity made using a manually operated camera a more successful viewing experience. At San Jose Senior High School the studio camera was used in the chemistry classroom for ten periods of observation, because the physical arrangement of the room made it easier to pick up specialized activity with a manually operated camera, and the chemistry periods were used as "fill in" observation for periods when classes were not meeting in the classroom set up for television.

Before observation started at Selma Olinder Elementary School for this group, packets containing information about the school and the lesson plans were given to the instructors and students.

Before moving to Roosevelt Junior High School the students were equipped with the following packet and materials:

1. A map of the school.
2. An observation schedule showing room and course

for a given date and time.
3. A school time schedule.
4. A seating chart for each scheduled class.
5. An analysis of each class, written by the teacher and including:
   a. Age range,
   b. I.Q. range,
   c. general information relative to work habits, citizenship, attendance, etc.,
   d. general information relative to linguistic and physical difficulties of students, if any,
   e. information relative to course content and method.

Before moving to San Jose Senior High School a similar packet of information pertaining to that school was made available to the instructors and students of Education 150.

Methods of Evaluation

The methods of evaluation for the Education 150 instructors and students were the same as those used for Elementary Education 104.

Instructors' Evaluations

The instructors' evaluations were reported in the "ITV Diaries" previously described for Elementary Education 104.

Student Evaluations

Student evaluations consisted of a pre-test and a post-test of the television observation experience. The tests were based on broad course objectives covering fifteen areas. These course objectives were developed by the Secondary Education Department instructors.

One instructor requested students to write comments, suggestions, and recommendations, relating to the television observation experience on the back of the post-test, and one instructor required a written evaluation of a televised English and social studies class.

The pre- and post- tests were constructed in the same way as those for Elementary Education 104, and the directions to the students were the same -- only the course objectives were different. The pre-test was given to the students on March 12, 1958 and the post-tests were given the last week of May and first week of June.

Public School Teachers' Evaluations

The teachers in the junior and senior high schools were requested to write evaluation statements concerning the

television observation program operated at their respective schools. These statements were to include advantages, disadvantages, suggestions, and recommendations for future televised observation.

Results

The evaluations of the data for Education 150 are admittedly highly subjective. There was no time to prepare or develop exact measuring instruments before television observation started.

Instructors' Evaluations

The six Education 150 instructors participating in the television observation project were: Dr. John C. Woodward, Dr. Charles C. Coffey, Dr. C. Denny Auchard, Dr. John A. Barr, Dr. John L. Moody, and Dr. Curtis T. Stafford.

Since there was no block viewing for Education 150 students, each instructor used television observation according to his own choice. This resulted in some instructors using television observation exclusively in class time and some preferring unscheduled viewing.

The six Education 150 instructors filled out "ITV Diaries" and the following remarks are based on the information contained therein. Every instructor but one mentioned difficulty with sound and listed it as one reason for an unfavorable impression.

As the program progressed, those instructors who became more familiar with the medium worked out techniques for use of television or else developed ideas for future utilization. Just as with Education 104, the noteworthy conclusion to be drawn from a study of these comments from Education 150 instructors is this: the initial part of the program was fraught with technical and psychological difficulties; some instructors were left with an unfavorable impression. As the weeks went by, however, those instructors who continued to explore the medium began to find ways to use television and the attitude became more favorable, if not to the project in its present stage of development, at least to the future of instructional television.

For example, one instructor discovered late in the program that if the cameras were set and left alone, they were soon forgotten by the pupils and normal un-self-conscious behavior began to emerge. The viewers still had a choice of three camera angles without adjusting any of the cameras.

Another instructor changed his attitude when he became used to "calling shots" and found an observation technique emerging.

Three instructors made summary statements which are quoted in their entirety.

Instructor #1

1. As is usual with students with any materials relating to children -- they are most interested in the area to which they expect to lend their talents. Thus our Education 150 people were most interested in senior high school area. They were, however, interested in that level more also because of the improved use of the media at that stage of observation.

2. Our classes in Education 150 -- mine particularly -- meet only twice a week. This does not lend to continuity in the observation program -- thus it loses much of its possible value. With the limited amount of time we have for presenting our materials, both the class and the instructors tend to exhibit anxieties in watching a class on television where a limited amount is happening that would contribute to our work.

3. On the basis of my limited experience with this medium, it seems to me the most effective use of the television closed circuit program is on the basis of planned programs that can be beamed to the students -- programs that all students can see and that are somewhat packaged in nature. Thus, as has been suggested -- a demonstration of the giving of an individual intelligence test, a faculty discussion of problems common to faculty, a demonstration lesson of a topic that is of interest to the students. For example, the classroom discussions of San Jose High School students on family living and reproduction brought out much high school discussion and showed our students some excellent teacher techniques in dealing with a highly emotional problem.

4. If we are to plan planned demonstration programs, it will be necessary to program similar demonstration several times during the semester at different times of the day and week so that we may require all students to see them without conflicts. If we can plan these demonstrations far enough ahead of time, we can organize our class presentations to tie in with the demonstrations.

5. With our present plan of viewing, I find that many of our instructors are unwilling to take the time to view because they find it difficult to tie in much of the viewing with what they are doing and because of the lack of continuity as mentioned above. If we are to have instructor manned free-viewing time, such time will have to be allotted in the instructor load.

Instructor #2

1. Except for an initial observation by both sections of my Education 150 classes, we did not use classtime for this purpose. Reason: Lack of time.

2. Many students did make observations via the "free viewing" periods.

CHART II - PRESENTS A COMPOSITE PICTURE OF ALL THE INFORMATION REPORTED BY THE INSTRUCTORS ON THE WEEKLY QUESTIONNAIRES - EDUCATION 150

	Instr. I	Instr. II	Instr. III	Instr. IV	Instr. V	Instr. VI
March 10	15 min. Hopeful.	30 min. Unfavorable.		2 hrs. Unfavorable.	1 hr. Unfavorable. (operational difficulties)	1 hr. Unfavorable.
March 17	30 min. More favorable.	10 min. Still limited value with kind of program picked up.			1 hr. Unfavorable. (technical and scheduling difficulties)	2 hrs. Unfavorable.
March 24						1 hr. Unfavorable.
April 7	30 min. Favorable.		2 hrs. Unfavorable.		4 hrs. All students have to observe in unscheduled room. Favorable.	
April 14	30 min. Favorable as far as saving student time is concerned.	1¼ hrs. For free viewing OK. Good camera work by men in trailer in response to my requests from L 315.			2 hrs. Favorable.	
April 21			2 hrs. Unfavorable at moment.			1 hr. More favorable than before.
April 28		Free viewing where observer calls shots better than classroom.				1 hr. Same as previous.
May 5		Some help--don't want to overlook other possible uses.				
May 12						1 hr. Favorable.
May 19						1 hr. Favorable.
May 26						1 hr. Favorable.

3. There is a question in my own mind as to the value of television observations for Education 150. We are primarily concerned with "behavior", and the camera does not do an adequate job where group behavior is concerned. The most valuable observations were those where the camera was held on one student for a long period of time (individual behavior), but even so, it was difficult to observe that student's behavior in relationship to the rest of the class.

4. I can see some value in television observation, but I feel the classroom observations offer more for the observer.

5. Television observations do offer opportunities for orientation to classroom observations.

Instructor #3

Although the (Instructional Closed Circuit Television) observational experiences provided for Education 150 were somewhat limited in scope this semester, I feel that the potential for the use of this medium for observational purposes is unlimited.

As compared to the method of sending students into the classroom, as far as directing the student's observation is concerned, it is of course highly superior.

Instructional Closed Circuit Television (ICCTV) provides a common observational experience not offered by other methods.

One of my students commented that it was nice to see the faces of the students for a change. In "live" observation you are seated in the back of the room and see the backs of the students' heads most of the time.

Although we all recognize limitations and needs for improvement, I feel that ICCTV provides us with another educational tool that will undoubtedly improve the efficiency of teacher training programs.

Student Evaluations

The student evaluations were based on a pre-test, a post test, voluntary comments, suggestions, and recommendations reported with the post-test (for one instructor), and written evaluations of a televised English class and a social studies class for a second instructor. The results of the student evaluations are described in the following pages.

Pre-test of Television Observation

Two hundred and twenty students in eight Education 150 classes took the pre-test on anticipation of what television observation could offer in relation to fifteen general course objectives. The pre-tests were administered to the students on March 12, 1958, prior to observation by television.

Instructions to the students for rating the pre-test and post-test are shown in Appendix M.

The post-test was identical to the pre-test and it was given June 12, 1958, after the television observation was concluded. Although all six instructors administered a pre-test, only three followed up with the post-tests. The results of these data are based on one hundred and twenty-five students taking both the pre- and post-test. No results are evaluated for the students in the groups taking only the pre-test.

The data are presented as follows: the item (course objective) on the test is followed by the combined responses, expressed as a percentage, of all the participating Education 150 students. The scale (see Table V) from left to right is: (1) Television is "highly superior," (2) "superior," (3) "the same as," (4) "inferior," (5) "very inferior," to other methods of meeting this objective.

It was felt that a response of 1, 2, or 3 could be considered a favorable response, and the first column ("POS") gives the total of responses 1, 2, and 3. The last column ("NEG") is the total of responses 4 and 5.

Discussion of Student Evaluations

An examination of Table V shows the same negative shift between pre- and post-test found in the Education 104 pre- and post-tests. The reasons are assumed to be largely the same and were evaluated by the same subjective method:

1. The anticipation (pre-test response) was probably high, partly because of the novelty of television and the readiness to accept a new medium.

2. The post-test responses were more carefully reasoned because students were better able to articulate their objections and there was some disappointment occasioned by technical difficulties and unexplored potential of the television medium.

Of the fifteen objectives on the test, it will be seen that nine were scored positive by 50% or more of the students, and of the remaining six objectives all but one were scored positive by 42% or more of the students.

The one objective that most students felt could be better handled by other methods was #10, relating to the importance of home-school relations and the part of the family in the learning process.

In view of the fact that this was an unstructured orientation period during which both students and faculty were groping for observation techniques, the response indicated that television may develop a vital role in this area.

TABLE V

PRE- AND POST-TEST RESULTS
EDUCATION 150

		POS	1	2	3	4	5	NEG
1. Develop a better understanding of education and its processes.	PRE	83.3%	3.6%	39.1%	40.6%	16.0%	0.7%	16.7%
	POST	51.2	1.6	11.4	38.2	37.4	11.4	48.8
2. Help the prospective teacher gain a better understanding of the ways in which learning occurs.	PRE	76.8	9.4	33.3	34.1	23.2	0.0	23.2
	POST	46.3	2.4	13.8	30.1	47.2	6.5	53.7
3. Develop a professional interest in both children, adolescents, and adults.	PRE	73.2	8.7	30.4	34.1	25.4	1.5	26.9
	POST	63.1	0.0	12.3	50.8	26.2	10.7	36.9
4. Help the prospective teacher gain a better knowledge of his own attitudes, behavior and psychological understandings, both in personal and in professional relationships.	PRE	72.5	2.9	26.1	43.5	24.6	2.9	27.5
	POST	50.4	0.8	16.3	33.3	41.5	8.1	49.6
5. Help the prospective teacher gain an understanding of the basic concepts of guidance that would be desirable for a classroom teacher to have.	PRE	76.8	8.0	42.0	26.8	21.7	1.5	23.2
	POST	51.2	1.6	13.0	36.6	39.0	9.8	48.8
6. Help gain an understanding of mental hygiene concepts.	PRE	66.0	0.7	18.9	46.4	31.2	2.9	34.1
	POST	45.9	0.0	5.7	40.2	40.2	13.9	54.1
7. Help students develop attitudes and understandings of teaching as a profession and of the professional responsibilities of teachers.	PRE	77.6	8.0	34.8	34.8	18.1	4.4	22.5
	POST	66.0	3.3	16.3	46.4	29.3	4.9	34.2
8. Gain an understanding of the characteristics of adolescent age children.	PRE	77.4	11.7	34.3	31.4	21.9	0.7	22.6
	POST	61.0	3.3	18.7	39.0	29.3	9.8	39.1
9. Gain an understanding of the basic concepts of mental health and their relationship to both the pupil and the teacher.	PRE	72.8	0.7	17.5	54.6	23.4	3.7	27.1
	POST	43.9	0.8	5.7	37.4	42.3	13.8	56.1
10. Gain an understanding of the importance of home-school relations and of the part of the family in the learning process.	PRE	42.3	0.7	13.9	27.7	46.0	11.7	57.7
	POST	21.2	0.8	4.1	16.3	43.1	35.8	78.9
11. Gain an understanding of the concept of maturity and the different kinds of maturity.	PRE	78.2	4.4	32.9	40.9	19.0	2.9	21.9
	POST	62.6	2.4	11.4	48.8	30.9	6.5	37.4
12. To develop an understanding of intellectual, social, and emotional development.	PRE	70.8	2.9	25.6	42.3	25.6	3.7	29.3
	POST	54.6	3.3	10.6	40.7	34.2	11.4	45.6
13. To understand the problems of adolescents and their influence on learning.	PRE	72.4	3.7	28.5	40.2	25.6	2.2	27.8
	POST	42.3	0.0	9.8	32.5	43.9	13.8	57.7
14. To gain an appreciation of the special needs of adolescents.	PRE	66.5	4.4	25.6	36.5	31.4	2.2	33.6
	POST	47.2	3.3	7.3	36.6	40.7	12.2	52.9
15. To develop concepts concerning mental health and learning.	PRE	73.0	0.7	19.7	52.6	22.6	4.4	27.0
	POST	51.2	0.8	7.3	43.1	39.8	9.0	48.8

The students in their free comments mentioned instructor guidance most often. All who mentioned this either said there should be more, or that what there was gave meaning to the observation experience.

A large number of students commented that the children being observed acted unnaturally because of the cameras.

There was general agreement that one cannot get the "feel" of a classroom via television.

The audio difficulties were mentioned by a significant number, as well as the tendency during the undirected observations for the cameras to move from child to child.

The lack of the ability to participate was not mentioned often (see comments under Education 104, probably because the Education 150 observers are instructed to remain apart from the situation even during field observation.

It was suggested by several that two television pictures be transmitted, one to give a continuous picture of the whole classroom, one for localized view.

In addition to the pre- and post- tests, two instructors asked each student to comment on television observation. A sampling of these comments follows and further samples appear in the Appendix Supplement.

STUDENT 1

Television observations are improving and if they have proper instruction at a television observation it helps the student. If there is a teacher qualified to give guidance on observations they mean much more.

STUDENT 2

I found absolutely no value in direct television for a course of this nature. It appeared put on in many cases. I feel actual classroom observation was much more beneficial. Direct television could be of assistance to layman as a device for gaining a knowledge of what goes on in public schools. I also feel it has merits as an instructional device.

STUDENT 3

I feel that television observations are very helpful and that it has helped me gain a better understanding of children at school. I feel that directed television is the best form of television observation. I definitely am in favor of television observations to help supplement classroom observation.

STUDENT 4

Television would be more effective in observing teaching methods than in study of individual behavior as used during the past semester. One serious lack in regard to present television viewing is that the observer has difficulty maintaining a total perspective in regard to the classroom. Too much random observation of individuals allowed little time for observing for a purpose.

STUDENT 5

My most fruitful television observations were those conducted by an instructor in the Education Department. Observing television on my own, without help, proved not too beneficial.

STUDENT 6

Television has the potential of becoming a superior method of observing child behavior. As of now, it is not superior to classroom observations. In order to become superior, television has to go beyond the things obtained by classroom observation.

STUDENT 7

I feel it is so limited in its scope that I would not justify its position in the curriculum. As long as it is here for at least the time being I think it should be improved in a few ways:

1. Quieter; I couldn't hear the students speak.
2. Less time should be spent (or camera focus) on one or two students.
3. A wider "camera angle" should be provided.
4. Not so much time concentrated on teacher.

The Secondary School Teachers' Evaluations

The evaluations made by the teachers in the secondary schools after the Instructional Television Observation Program was concluded, are reported in their entirety:

PRINCIPAL 1

As a result of our experience with closed circuit television, I am convinced that the medium offers tremendous possibilities in the field of education. I am happy to have been a part of the experiment. The overall reaction of the school to the program was quite positive in nature. There was a minimum of upset to the school routine, but a major upset in the routine of the principal. This was due entirely to his own inquisitiveness, however.

The positive values of the experience for the participants might be listed as follows:

1. Strong motivation for the teachers and students to be part of a worthwhile program in its experimental stages.
2. Ego satisfaction in being chosen to help in the teacher training program.
3. The opportunity for our entire staff to observe other teachers' classes in action through this medium.
4. The incidental learnings involving the technical aspects of getting the picture to the college.

The negative factors, from our point of view, were:

1. The high background noise level that distracted the viewers.
2. The noise the remote cameras made in the classroom was also a distracting factor to the students being viewed.
3. The lack of any clear perception on our part as to how the class or the individuals in the class were being interpreted to the college students.

I am sure that the elimination of the negative factors are all within the realm of possibility. When they are eliminated, or at least reduced, the closed circuit television program should prove itself to be highly beneficial in the training of prospective teachers and to open new vistas of communication between the public schools and the college.

**

TEACHER 1

Evaluation of closed circuit television program in mathematics:

POSITIVE

1. The motivation to meet a new experience was quite effective. The children were careful to be neatly dressed and were prepared for a new and exciting experience.
2. Quite a number of parents who visited school for Open House were quite thrilled to have their children experience the work under lights and before cameras and microphones.
3. The experience was interesting to the instructor.
4. The project was valuable as an experience in which children, faculty, college, and technicians worked together in the common interest.
5. Some children had an opportunity to see themselves on the screen -- all were able to see Roosevelt students on the screen.

NEGATIVE

1. More opportunity for the children to see their class in action.
2. Better control of microphones needed -- where only one microphone was used the noise was greatly reduced.
3. The most serious omission and one which could easily be controlled: we had no reports from the college instructors and classes on how our programs were coming in. If this work is worth doing, the classroom teachers should receive regular reports from college instructors and classes. Our evaluation of our efforts leaves us with a feeling of doubt on the value of our efforts. (I am not referring to the technical staff who were most cooperative.) If this project is continued, keep the classroom teacher up to date with reports from college classes and instructors.

**

TEACHER 2

The following is an evaluation of the San Jose State television pilot program in two art classes (7th and 9th Grade) at Roosevelt Junior High School:

A. Values Accrued to the Teacher and Students.

1. The television project provided an interesting and different type activity for our art classes.
2. It offered the opportunity to integrate science material into the art program.
3. A field trip which all the students found to be a most enjoyable learning experience was provided for the 9th Grade to the San Jose State television studio.
4. Students were given the opportunity to see their own art work as it appeared on television.
5. Students were able to observe their peers.

B. Some General Observations.

1. Television did not disturb or distract the majority of students.
2. Some students (7th Grade) felt that the approach of a manually operated camera caused them to "freeze up."
3. The courtesy and friendliness extended by the San Jose State television technical staff was most sincerely appreciated.
4. This teacher did not feel any particular strain from television after some first day nervousness.

5. The art curriculum was not changed in any way for television.

6. This teacher was most disappointed in not being able to observe a working application of this project within the San Jose State classroom other than observing the monitor set with no comment on application.

**

TEACHER 3

Any evaluation of our television experiences has two facets: the teacher's summary of the value of the participation on the class, and the students' attitude toward the whole learning situation.

As the classroom teacher, I felt the television offered a wonderful motivating factor to both the slow and fast moving classes. We reviewed class standards, improved work habits, and the teacher presented lessons that had a wider variety of learning experiences.

My slow youngsters were thrilled to be included; most of them felt a success in school they had not found before. They were not embarrassed to read, discuss, or write before an audience (this thrilled me). After we had seen another class on television, we decided to show what veterans we were on our next programs by being unconcerned with the cameras. An excursion to the college might have been worthwhile if we had carried on the program longer.

The faster class seemed more camera conscious. I felt any class could get used to the equipment in the room and could carry on a normal classroom situation. Personally, I would have enjoyed seeing what the college classes did with "us".

I feel this has been a good "learning experience" for me, above everyone else in the classroom. I appreciated the opportunity to participate. I can see a great value in watching other teachers and classes as a form of inter-visitation. Programs on special subjects sent from the college to us would be worthwhile.

**

TEACHER 4

I am very happy to have been a part of the television educational program and found it a very interesting experience. The men who operated the cameras did an excellent job; it was amazing how quickly they could shift the focus from one student to another and anticipate what was to happen next.

If television is to be a permanent part of the educational program, I feel that there are certain improvements to be made. Junior high school students are easily excited and self-conscious, but I feel that they would soon have forgotten about being on television had it not been for the noise made by the cameras. The

mikes picked up far too much extraneous noise, sometimes drowning out the sound of the students' response entirely. The noise factor was very distracting.

I would like to have visited a college class to see what use was being made of the program, being able to hear the comments of the professor and the college students. It would also have been helpful to have received a detailed evaluation from the college classes who observed us.

**

PRINCIPAL 2

The summary of the evaluations submitted by the teachers involved in the television project this year at San Jose High School follows:

1. The noise of the cameras was the most disturbing element.
2. Teachers were not sufficiently oriented at the beginning as to the actual use to which the observation was to be put. In other words, it was our idea that the observation was a study of pupil behavior. Only after the program was under way did we learn that observation was also being made of methods and techniques, with the teachers very much on camera.
3. A prior meeting of the professors who were using the observation and the teachers whose classes were being observed would help to increase better understanding.
4. Either units in professional growth or graduate credit should be granted to teachers taking part in the program.

**

SECTION 3

CHILD GROWTH AND DEVELOPMENT and ADOLESCENT HEALTH PROBLEMS

The Health and Hygiene Department selected two courses to include in the Instructional Television Observation Program. The two courses selected were: Health and Hygiene 101, Child Growth and Development, and Health and Hygiene 102, Adolescent Health Problems. These courses are described as follows:

> Health and Hygiene 101. Child Growth and Development. Normal growth and development with emphasis upon children of school age....
>
> Health and Hygiene 102. Adolescent Health Problems. A psychological approach to adolescent health problems....

These two courses are reported together because Child Growth and Development is concerned with differences in children at the elementary level, and Adolescent Health Problems is concerned with differences in children at the junior and senior high school level.

Areas of Concern

The Health and Hygiene Department was interested and willing to take part in the Instructional Television Observation Program, although it was faced with several problems of scheduling that limited the amount of time available for observing.

Scheduling

Child Growth and Development and Adolescent Health Problems are two-unit courses which require approximately thirty hours a semester in which to cover an enormous amount of course content. Observation of children is a requirement of these courses, but limited observations had been made outside of class time. The only solution to the scheduling problem was to take class time for observation. The only time all of the sections in Child Growth and Development and Adolescent Health Problems could be scheduled as a group was between 1:30-2:30 p.m. on Friday.

Procedure

The method of observation used to televise classroom activity for the courses previously described was also used for Health and Hygiene. Because of scheduling difficulties the only time Child Growth and Development (H & H 101) and Adolescent Health Problems (H & H 102) could arrange block observation was on Friday afternoon in the large group viewing room (Education Building, Room 55); they therefore

scheduled observation sessions on March 14, 21, 28, April 11, 18, 25 and May 2.

Methods of Evaluation

The methods of evaluation for Health and Hygiene 101, and 102, were the same as those used for the course previously reported.

Instructors' Evaluations

The instructors' evaluations were reported in the "ITV Diaries" previously described, and in a Departmental Meeting on May 27, 1958.

Student Evaluations

Student evaluations consisted of a pre-test and a post-test of the television observation experience. Carefully prepared course objectives structured to take full advantage of the television medium were developed by the three instructors teaching the conventional Health and Hygiene 101, and 102 courses. The directions to the students taking the tests were the same as those given in the other courses previously reported. The pre-test was given on March 12, and the post-test was given on May 21, 1958. A few of the students made additional comments on the pre- and post-tests.

Results

Before evaluations of the data for Health and Hygiene 101, and 102, are reported, it is necessary to understand some of the factors influencing the observation experience for students in these courses.

The test items (See Table VI) were taken from a five page list of observation objectives* which were drawn up specifically for the television observation experience and were considered those most likely to be satisfied by television. They were specific, and included suggested camera angles and techniques which would be necessary to fulfill them. Since information regarding height, age, and weight was necessary to make meaningful certain observations, the instructors obtained these data.

It was thus most acutely embarrassing for the Instructional Television Staff when it was learned that the schedule had been changed and Friday afternoon observation was not to be allowed.

The first scheduled observation was cancelled. The second, a week later, was replaced with an orientation to the Instructional Television Project given by Dr. Richard B. Lewis, Audio-Visual Division Head. The third Friday was devoted to a studio

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*See the Appendix Supplement.

TABLE VI

PRE- AND POST-TEST RESULTS
HEALTH & HYGIENE 101, 102

		POS	1	2	3	4	5	NEG
1. To enable students to observe children of various levels of development.	PRE	92.5%	19.1%	56.2%	17.2%	6.7%	1.0%	7.7%
	POST	78.4	3.4	34.1	40.9	19.3	2.3	21.6
2. To understand the normal or average achievements in growth and maturation.	PRE	81.0	5.7	34.3	41.0	18.1	1.0	19.1
	POST	61.4	1.1	17.1	43.2	34.1	4.6	37.8
3. To understand what to expect from each age level in terms of physical activities, learning abilities, and social and emotional development.	PRE	90.5	11.4	46.7	32.4	8.6	1.0	9.6
	POST	68.2	2.3	22.7	43.2	23.9	8.0	31.9
4. To recognize evidences of deviations in the growth processes.	PRE	84.8	8.6	40.0	36.2	13.3	1.9	15.2
	POST	68.2	1.1	25.0	42.1	26.1	5.7	31.8
5. To develop an understanding, knowledge, and attitude concerning the body size, general appearance, and activity levels of school children.	PRE	87.7	19.1	40.0	28.6	11.4	1.0	12.4
	POST	79.5	3.4	31.8	44.3	20.5	0.0	20.5
6. To provide opportunity to learn about the growth levels of children.	PRE	88.7	6.7	37.2	44.8	11.4	0.0	11.4
	POST	70.5	1.2	15.9	53.4	26.1	3.4	29.5
7. To observe the wide variations in rate of development that become strikingly obvious during the junior high school years.	PRE	85.8	17.2	38.1	30.5	11.4	2.9	14.3
	POST	77.3	3.4	31.8	42.1	21.6	1.1	22.7
8. To observe the physical development of the female (height, weight, secondary sex characteristics) in comparison with the male of comparable age.	PRE	82.9	9.5	37.2	36.2	13.3	3.8	13.7
	POST	75.0	5.7	31.8	37.5	25.0	0.0	25.0
9. To observe the changes taking place in various parts of the body, i.e., trunk length, leg length, facial lengthening, etc.	PRE	63.8	6.7	15.2	41.9	27.6	8.6	36.2
	POST	46.0	1.2	16.1	28.7	40.2	13.8	54.0
10. To observe the relationship of uneven growth and its effect on body control and posture.	PRE	81.9	9.5	36.2	36.2	16.2	1.9	18.1
	POST	64.4	0.0	25.3	39.1	33.3	2.3	35.6
11. To observe, where evidenced, boys beginning to catch up to girls in physical growth.	PRE	87.5	5.8	37.5	44.2	9.6	2.9	12.5
	POST	66.5	1.2	21.8	43.7	29.9	3.5	33.4
12. To observe any gradual improvement in posture with maturity.	PRE	74.4	6.7	26.7	41.0	19.1	6.7	25.8
	POST	52.2	1.1	12.5	38.6	36.4	11.4	47.8
13. To observe attention spans and the effect of motivation on attention.	PRE	88.6	27.6	39.1	21.9	10.5	1.0	11.5
	POST	82.8	11.5	36.8	34.5	17.2	0.0	17.2
14. To observe individual differences-- males and females, i.e., males in mathematics, reasoning, spatial judgment, and science; females in verbal fluency, rote memorization, and dexterity.	PRE	84.8	21.0	35.2	28.7	13.3	1.9	15.2
	POST	46.6	1.1	15.9	29.6	39.8	13.6	53.4
15. To observe mood swings, i.e., defiant and rebellious to cooperative and responsible.	PRE	81.0	17.2	38.1	25.7	15.2	3.8	19.0
	POST	67.8	6.9	20.7	40.2	27.6	4.6	32.2

presentation on skeletal growth by Mrs. Jean E. Lees, and the fourth was devoted to another studio presentation, this time by a dental surgeon, Dr. R. T. Dunkin. Finally on April 18, the Health and Hygiene classes experienced their first closed circuit television observation, at Selma Olinder Elementary School. On April 25, another studio presentation, this time on pediatrics, was given by Dr. Krist Biankanja. For the last week a classroom observation was scheduled--the second out of an anticipated seven--and the disappointment that ensued can be understood when it is explained that during the whole hour of observation the televised students were taking an examination.

Instructors' Evaluations

The three Health and Hygiene 101, and 102 instructors participating in the Instructional Television Observation Program were: Mrs. Estees Potter Levine, and Mr. Richard E. Whitlock, Health and Hygiene 101, and Mrs. Evelyn L. Blackman, Health and Hygiene 102.

Because of the limited amount of classroom observation available to Health and Hygiene 101 and 102, the instructors' "ITV Diaries" contain few remarks. A more comprehensive expression of instructor attitude will be found in the section pertaining to studio presentations (Chapter III). The following comments are in answer to the question "Is your general reaction at this time favorable or unfavorable as to the instructional value of television in your course?"

> Unfavorable at present time because we are yet to do something which could not be better handled from the classroom.
>
> Much more preparation in the nature of understanding the potentialities and limitations of the medium on the part of instructors is indicated.
>
> The teaching during this period consisted of a written test. No chance to observe activity.
>
> Unfavorable as this course starts at 8:20 a.m. and television observation can't begin until 9:00 a.m. If additional time is lost because of technical difficulties, observation is useless.
>
> Favorable if carefully planned. Observation today showed an active classroom and children seemed interested. Not always possible.

Two Unmodified Observations

> Primary (April 18)
> Could not pick out differences easily. Need to have more time than is available to get to know the children and to be able to look for specific things.

Junior High (April 24)
Camera not able to pick up students reciting quickly enough. Very little movement and no chance to pick up differences between students.

High School (May 15)
High School teacher lecturing and students taking notes - no chance to observe sizes.

Student Evaluations

The student evaluations were based on a pre-test and a post-test, and voluntary comments by the students written on the tests.

Pre-test of Television Observation

A pre-test on anticipation of what television observation could offer in relation to fifteen course objectives was administered to one hundred and twenty-six students in six sections of Health and Hygiene 101, and 102. It was developed carefully to take full advantage of the television medium.

The pre-tests were administered to the students between March 3, and March 12, 1958. Prior to television observation in Health and Hygiene, six of the students had observed briefly in other courses. Instructions to the students for rating the pre-test were the same as for the other courses previously reported.

The post-test was identical to the pre-test and it was given May 12 and May 24, 1958, after television observation was concluded.

The data are presented as follows: the item (course objective) on the test will be followed by the combined responses, expressed as a percentage, of all the participating Health and Hygiene 101, and 102 students. The scale (see Table VI) from left to right is: 1-television is "highly superior", 2- "superior", 3- "the same as", 4- "inferior", 5- "very inferior", to other methods of meeting this objective.

It was felt that a response of 1, 2, or 3 could be considered a favorable response, and the first column ("POS") gives the total of responses 1, 2, and 3. The last column ("NEG") is the total of the responses 4 and 5.

As with the other courses previously reported, the students made comments on their experience with television observation if they wished. Fourteen students wrote comments and these follow:

Pre-Test Comments of the Students

1. This could work out in time - but so many things, I feel, would be impossible to determine from looking at television, (this before observation of any kind).

2. I actually believe that direct observation of children in the class room and on the playground would be much more effective than TV observation. When children would possibly not act in their usual manner - I think that this method will no doubt improve with time. (I have not observed yet.)

3. I have observed to a limited time both in the classroom and closed circuit TV. There is no replacement for observing children's expressions, attitudes, etc. (for me). By direct observation in a school the child's activity in going to recess, approaching P. E., and entering a class is lost. However, with older students (above grades 4 and 5) the distraction of an observer in the classroom or on the playground alters behavior to a greater extent than it does the younger ones. There is great merit for both methods.

4. I have seen CCTV. I believe with time that this may work out, but I believe that actual classroom observation is best. However, when this is not possible CCTV is fine.

Post-Test Comments of the Students

1. Audio effects were poor, very difficult to hear. Very hard to see whole classroom situation; it is easier to study just one or two children, but the size of the screen limits large group shots, which to me, seems to be important.

2. I think CCTV has a definite place in college.

3. I feel we were not prepared enough in observing by TV. This made us not receive the full benefit from it. We were not observing one class long enough to get to know any of the children and able to recognize certain actions. We did not know a child by sight to tell what his behavior was. I think CCTV has many possibilities, but under the circumstances now, I didn't receive much value out of it.

4. As we have stated in class discussion, I feel that had we been primed - the pump would have produced water. We didn't know what to look for and therefore spent much time looking for something to look at. The lectures and demonstrations were very good -- very informative; and speaking for myself I feel a somewhat greater retention value from them because the mind is keyed to grasp and cling to these things because it is a new medium of education and I feel we all want it to succeed. But the problem is now to make the fullest use of it.

5. On the various developmental levels what is normal, what to expect - there is too much to be discerned in one or two observations of each age. It would have to cover many different ages and each age more than one time in classroom situations. It would help if we had some one to point out what to look for as the TV is going on.

6. I believe that a lecturer who is limited in time would be fine to view by several classes. I also think that close-ups of children particularly of pre-school age are excellent and superior on television. These, I believe, are the distinct advantages.

7. Observation by closed circuit television is probably very effective, but I did not find it so. I believe I feel this way because the television camera moved first from one child to another, never giving us an opportunity to really observe one individual. Oth erwise, I thought television a fine medium for observation.

8. Much that was used could have been better by (a) individual mikes for children or groups - we got very little of what children said - too much general noise.

9. I would mark none with Number 1, because I think nothing will ever top personal observation.

10. Our viewing was so limited that many of these points were not seen. I feel that we didn't get enough close shots of the children to be able to notice many of these points.

11. A lot of these questions we didn't have a chance to see, and I believe it is unfair to ask anything about them if we didn't see them, and we very well compare this method with others for we did not even touch this field.

12. I felt that for such things as Dr. Biakonja's demonstration, the television observation was excellent, affording a chance for close-ups and the like. However, I felt that on such things as the lecture it was inferior as the lecturer had no way of "feeling" his audience and so on. It was my impression that one could not get a true idea of mood changes, effects of motivation and so on in the classroom observations, because the children were all too aware of the cameras.

13. The one I thought most successful was that with Dr. Biakonja. We actually saw a six month old infant in action better than if we had observed it personally. The bone growth lecture was extremely poor as compared to the one on dental care.

14. With thought each ensuing observation can be excellent, although the classroom observation will always be poor.

Discussion of the Results of Health and Hygiene 101, 102 Television Observation

It will be seen from a study of Table VI that in spite of the hardships encountered in this segment of the television observation program there was still a very positive response.*

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*The negative shift characteristic of all the post-tests administered in all courses has been discussed previously.

Of the fifteen items on the post-test, all but two fell in the television "Positive" column. The two that fell below 50% had to do with observing changes taking place in various parts of the body and with observing individual differences in mathematics, reasoning, spatial judgment, and science in males, and verbal fluency, rote memorization, and dexterity in females. Even with those two, 46% felt that television was equal to or better than field observation. Twelve of the objectives scored 60% or better and six scored 70% or better.

The degree to which the classes were prepared, the thoroughness with which the objectives were conceived and developed and the specific nature of the objectives doubtless led to this positive response.

The written comments of the students (see above) show concern with instructor guidance, technical problems, and camera direction.

SECTION 4

CHILD PSYCHOLOGY and EDUCATIONAL PSYCHOLOGY

Child Psychology (Psychology 102) and Educational Psychology (Psychology 150) are two courses where direct classroom observation might make a real contribution since there is no provision for students in these two courses to obtain observation in the public schools. The psychology instructors teaching the above courses limited the use of television observation during the spring semester to an orientation experience to determine how it might best be utilized to the full potential of the medium in the fall semester.

These two courses will be reported together; a detailed report based on the limited data available, with the trial-and-error orientation method used would be superfluous at this stage of project development.

The two courses are described as follows:

Psychology 102. Child Psychology. A survey of child development from infancy to adolescence . . .

Psychology 150. Educational Psychology. The development of the individual and how he learns . . .

Areas of Concern

The television medium provided the first opportunity for students in the two courses described above, to obtain observation in the public schools; consequently any observation of children in a learning situation was an added educational experience.

Scheduling

No definite schedule was provided in the Instructional Television Observation Program for the students in Psychology 102, or 150, although television receivers were installed in the regular classrooms for the five instructors involved to use the medium during class time as they desired.

Procedure

The method of observation used for Child Psychology and Educational Psychology was limited to class time observation; no block viewing or extra unscheduled observations were used.

Method of Evaluation

The methods of evaluation for Child Psychology and Educational Psychology were the same as those used for the courses previously described.

Instructors' Evaluations

The instructors' evaluations were reported in the "ITV Diaries" previously described.

Student Evaluations

In Child Psychology one instructor administered pre- and post-tests based on course objectives and both instructors asked students to make written comments on the program.

In Educational Psychology one instructor administered pre- and post-tests but neither asked for student comments.

As with Psychology 102, the viewing was done entirely in class.

RESULTS

The results of these data are based on four hours and forty minutes of television observation during class time for three instructors in Educational Psychology, and one hour and thirty minutes of television observation for two instructors in Child Psychology.

Instructors' Evaluations

The two instructors in Child Psychology utilizing television observation were: Dr. Adolph Schock and Mrs. Mary D. Goff.

Neither instructor was able to use closed circuit television extensively during class time because the Psychology 102 classes were engrossed in the study of nursery and primary school children in classroom and play situations and thus a great part of the program was not appropriate to their use. The following comments largely explain why.

> Television sequence of grades this month has made viewing impractical for Child Psychology.
> We used it one day in each class to get the feel of it, but since we were studying the infant and toddler, the 6th grade class available was not very worthwhile. We're hoping that next month will give us something we can use, especially kindergarten and play-field activities in lower grades.

> This time we were able to see a second grade class which was nearly the age level being studied. However, we saw only the section of the room directly under the teacher's guidance. Will try contactacting the operator next time as we are concerned with more spontaneous behavior. Play fields and the like are our hope.

> I am sure our difficulty is largely one of programming and will eventually be taken care of.

In Educational Psychology three instructors used television observation: Dr. Gene Wallar used the medium for one hour the first two weeks, and twenty minutes the third week. Dr. Earl Jandron used television for one hour the first week, and Dr. James Sawrey used television observation for a total of one hour and thirty minutes each the first and second weeks. One instructor made the following comments:

> The television as viewed in my class is too time-consuming for the amount learned. A movie would probably serve better.
>
> I've been disappointed in the lack of attention on individual students (pupils).
>
> Very hard to fit in with my class in Educational Psychology.

Another instructor made the following comments:

> 1. The idea of rotating classes is very disconcerting. We want to see children and we would like to come to know some.
>
> 2. Classroom activities bear no relation to our discussions. It's hard to divorce the content of the class from the observation of the children.
>
> 3. As operating crews become more acquainted with children, perhaps they can be helpful in concentrating on children who would be of interest.

The week of April 10 the following comment appears in the "ITV Diary":

> I was better able to set the stage for a short viewing period. What we saw fit better into our discussion this week than before. I used this viewing as an isolated incident to illustrate a particular point in learning theory.

Student Evaluations

The student evaluations were based on a pre-test and a post-test, and voluntary comments written by the students.

Pre-Test of Television Observation

A pre-test concerned with anticipation of what television observation could offer in this course in relation to twelve general course objectives was administered to forty students of Child Psychology.

The pre-test was administered to the students on March 25, 1958, prior to television observation. Instructions to the students were the same as those given for other pre-tests previously reported.*

The post-test was identical to the pre-test and it was given on June 3, after the brief television observation was concluded. The data are presented as follows: the item

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*See Appendix M.

(course objective) on the test is followed by the combined responses, expressed as a percentage, of all the participating Child Psychology students. The scale (see Table VII) from left to right is: 1 - television is "highly superior", 2 - "superior", 3 - "the same as", 4 - "inferior", 5 - "very inferior", to other methods of meeting this objective. It was felt that a response of 1, 2, or 3 could be considered a favorable response, and the first column ("POS") gives the total of responses 1, 2, and 3. The last column ("NEG") is the total of the responses 4 and 5.

Discussion of the Results of the Pre- and Post-tests for Child Psychology

A study of Table VII yields results which are especially interesting in view of the fact that the actual observation experience was not appropriate to their studies. It will be seen that of 12 objectives on the post-test, 100% were scored in favor of television; indeed all of them were above 69% and 9 were above 75%. This positive response must, then, be based on what the students felt television could do if given the chance, and this attitude bodes well for future programs for Child Psychology.

The salient feature of the comments quoted below pertain to the lack of appropriateness and with technical difficulties.

Samples of the Student Comments Reflecting the Observation Experience

1. TV educational programs in observing a class has great potentials; however, because of the odd hour of our class meeting we did not get full benefits from programs available to other classes.

2. From our limited viewing this semester, I feel that I am not able to judge the television programs fairly. Many things I have marked down merely because I didn't see them. Also, 2:00 is a very inconvenient hour to view most of the activities discussed above.

3. Our class having met at two o'clock did not have the opportunity to view the lower grades, and because of this the television had little correlation with our studies. I think that television would better serve a class such as Child Psychology if we were able to view more student activity and less of the teacher who is in charge of the class.

4. It is my hope that as the medium becomes more familiar there will be better scheduling in accordance with the need of each class.

5. Material offered at our class time was not something pertaining to our studies. Noise, etc., often covers all speech and, therefore, we lose contact.

6. The only advantage that I can see in using television is that you see something as it is happening. We don't yet have the knowledge to be able to tell what is happening (the finer points) without having each kind of behavior simplified somewhat and separated

TABLE VII

PRE- AND POST-TEST RESULTS
CHILD PSYCHOLOGY 102

		POS	1	2	3	4	5	NEG
1. Observe the interaction of nursery school children as they make their first real social contacts outside the home.	PRE	95.0%	17.5%	65.0%	12.5%	5.0%	0.0%	5.0%
	POST	76.4	13.2	47.4	15.8	18.4	5.3	23.7
2. To observe the aggressions, frustrations, and the like which nursery school children encounter.	PRE	90.0	17.5	60.0	12.5	10.0	0.0	10.0
	POST	78.0	2.6	47.4	29.0	15.8	5.3	21.1
3. Observe 5-year-old peer group behavior in the kindergarten.	PRE	95.0	12.5	60.0	22.5	5.0	0.0	18.5
	POST	81.6	13.2	36.8	31.6	13.2	5.3	18.5
4. To observe more or less formal situations in the kindergarten.	PRE	85.0	10.0	47.5	27.5	15.0	0.0	15.0
	POST	81.6	7.9	34.2	39.5	13.2	5.3	18.5
5. To take note of the developmental pattern of behavior which is emerging in kindergarten as compared with individuals in the nursery school.	PRE	87.5	10.0	42.5	27.5	15.0	0.0	12.5
	POST	78.9	18.4	18.4	42.1	15.8	5.3	21.1
6. To observe the developmental sequence from nursery school through the 5th grade.	PRE	85.0	20.0	40.0	25.0	15.0	0.0	15.0
	POST	73.6	18.4	36.8	18.4	23.7	2.6	26.3
7. To observe children interacting in a play situation, noting individual differences as they meet and mix with their peer group.	PRE	95.0	20.0	45.0	30.0	5.0	0.0	5.0
	POST	75.0	25.0	22.2	27.8	16.7	8.3	25.0
8. To note the interactions of children in a semi-formal situation, and to learn what provision is made for individual differences.	PRE	85.0	12.5	40.0	32.5	15.0	0.0	15.0
	POST	76.4	5.3	31.6	39.5	21.1	2.6	23.7
9. To observe counseling in grade schools or with an early adolescent child and to note counselor's techniques and the attitude of the child.	PRE	87.5	30.0	27.5	30.0	10.0	2.5	12.5
	POST	69.4	27.7	11.1	30.6	27.7	2.8	30.5
10. To observe play therapy in groups and/or individually, to observe the methods used, and the attitudes of counselor and child.	PRE	92.5	32.5	45.0	15.0	7.5	0.0	7.5
	POST	92.1	26.3	39.5	26.3	5.3	2.6	7.9
11. To observe finger painting and the use of drama in therapy.	PRE	92.5	27.5	35.0	30.0	5.0	2.5	7.5
	POST	79.5	18.0	35.9	25.6	15.4	5.1	20.5
12. To observe speech correction with children, to note how the correctionist works with the child or children, types of disabilities which are handled as a group, and those which must be individual.	PRE	94.8	25.6	51.3	17.9	2.6	2.6	5.2
	POST	74.4	28.2	30.8	15.4	20.5	5.2	25.6

from other types of behavior. If we are given an objective--told to watch for one particular type of behavior--we might benefit from watching television. But it is too confusing to watch everything and see meaning in all the common-place occurrences which take place before the television camera. Also, the audio system does not catch significant conversations. We see but cannot hear.

Pre-test of Television Observation for Educational Psychology

A pre-test based on fourteen broad course objectives was administered to forty-five students in Educational Psychology on March 4, 1958, prior to television observation. Instructions to the students for rating the test were the same as those given in other courses previously reported.

The post-test was identical to the pre-test and it was given June 3, after the television observation had been completed. The data are presented in the same manner as that for Child Psychology.

Discussion of the Results of the Educational Psychology Pre- and Post-Tests

Of 14 items on the post-test, 10 were scored in favor of television and nine of these ranked above 60%. The lowest one, #2E (39.6%) had to do with observing teacher methods of diagnosing and remedying difficulties. The next lowest, #2D (41.7%) dealt with understanding the role of home and cultural background. Third from the lowest, #2B (44.5%) dealt with understanding the role of self-evaluation in learning, and the only other item to fall below the 50% mark was #1C (44.6%) in which they were to observe influences of emotional factors in learning situations.

Tentative Conclusions

Conclusions based on the limited viewing experience for Child Growth and Development, Adolescent Health Problems, Child Psychology, and Educational Psychology can be stated only in general terms. The major limitations of the initial observation program for these courses were:

1. No objective data could be accumulated.
2. Effectiveness of observation was limited by the impossibility of scheduling observation at the hour and grade level needed for the above courses.
3. Faculty orientation on techniques of television utilization, a necessary adjunct to any television observation program, was not possible.
4. Distortion, due to the necessity of placing the cameras on pedestals over the heads of the pupils, made it difficult for viewers in Child Growth and Development to make comparisons of children for size, and other physical characteristics.

When the above limitations are removed from the observation program, it was the opinion of all participants in the above courses that television would make a real contribution in the areas discussed.

Tentative Recommendations

Following a careful evaluation of the data obtained from the above courses during the brief observation period, the following tentative recommendations are offered:

1. Schedules should be prepared for specific observation experiences.

2. Faculty orientation is necessary.

3. The same class should be observed for longer than one period in order for the viewing students to identify with the pupils enough to make comparative judgments concerning physical characteristics, maturity, and other growth and development factors.

4. More exact measuring instruments should be developed to insure objective evaluations.

Summary Statement

During the initial orientation period of the total television observation project no attempt was made to measure the amount of learning taking place; the data presented above provides a rough indication of only the attitudes of faculty and students participating in the project. It is pertinent to summarize these attitudes and base recommendations on them.

Technical Aspects

Much of the criticism of the program was directly or indirectly related to technical aspects of the project:

1. Interruptions of the signal, whether due to actual interruptions of the televised signal (which happened only twice) or to mis-adjustment of the receiving monitors constituted a source of frustration for some instructors wishing to utilize television observation.

2. Audio difficulties, occasioned by the fact that microphones pick up and seem to emphasize background noise, detracted from the effectiveness of the observation.

3. The children observed were conscious of the equipment because the Zoom lenses were noisy in operation.

4. It was suggested that two channels be used for transmission--one giving a continuous shot of the whole room with the other free to close in on centers of interest.

TABLE VIII

PRE- AND POST-TEST RESULTS
EDUCATIONAL PSYCHOLOGY 150

		POS	1	2	3	4	5	NEG
1. Appreciate more fully individual differences among learners.	PRE	95.5%	31.1%	51.1%	13.3%	4.4%	0.0%	4.4%
	POST	69.5	0.0	44.7	27.8	16.7	13.9	30.6
a. Observe differences in rates of learning.	PRE	91.2	17.8	46.7	26.7	8.9	0.0	8.9
	POST	52.9	5.6	19.5	27.8	36.1	11.1	47.2
b. See the influences of great variations in intelligence.	PRE	91.2	6.7	46.7	37.8	8.9	0.0	8.9
	POST	63.9	0.0	25.0	38.9	27.8	8.4	36.2
c. Observe influences of emotional factors in learning situations.	PRE	93.3	28.9	33.3	31.1	6.7	0.0	6.7
	POST	44.6	5.6	19.5	19.5	47.2	8.4	55.6
d. Study attitudes of different students.	PRE	93.3	35.6	33.3	24.4	6.7	0.0	6.7
	POST	66.7	0.0	38.9	27.8	22.2	11.1	33.3
e. Observe teachers' methods of adjusting to individual differences.	PRE	97.8	26.7	44.4	26.7	2.2	0.0	2.2
	POST	80.6	13.9	30.6	36.1	16.7	2.8	19.5
2. Observe techniques and results of learning.	PRE	97.8	20.0	55.6	22.2	2.2	0.0	2.2
	POST	86.7	0.0	25.0	41.7	22.2	11.1	33.3
a. Appreciate the role of motivation in learning.	PRE	93.3	20.0	51.1	22.2	6.7	0.0	6.7
	POST	77.8	11.1	25.0	41.7	16.7	5.6	22.3
b. Understand the role of self-evaluation in learning.	PRE	91.2	6.7	37.8	46.7	8.9	0.0	8.9
	POST	44.5	2.8	13.9	27.8	47.2	8.3	55.5
c. Appreciate aspects of socialization and group dynamics in learning.	PRE	97.8	35.6	37.8	24.4	2.2	0.0	2.2
	POST	75.1	0.0	44.5	30.6	19.5	5.6	25.1
d. Begin to understand the role of home and cultural background.	PRE	71.0	4.4	22.2	44.4	26.7	2.2	28.9
	POST	41.7	2.8	11.1	27.8	30.6	27.8	58.4
e. Observe teachers' methods of diagnosing and remedying difficulties.	PRE	88.9	26.7	40.0	22.2	8.9	2.2	11.1
	POST	39.6	5.6	19.5	44.5	16.7	13.9	30.6
3. Appreciate that learning involves the total personality of the learner.	PRE	91.1	15.6	42.2	33.3	8.9	0.0	8.9
	POST	75.1	0.0	19.5	55.6	22.2	2.8	25.0
4. Observe methods in the development of self-discipline.	PRE	89.0	24.5	46.7	17.8	11.1	0.0	11.1
	POST	61.1	2.8	25.0	33.3	30.6	8.3	38.9

5. It should be reaffirmed that the televised picture was of high quality a good proportion of the time. Some students and faculty members recognized this and so stated in their comments.

Scheduling

A great many comments were directed toward areas influenced by the scheduling:

1. The Education 104 block observation period was felt to be too long, partly because of factors to be mentioned under Orientation and Guidance below, and partly because two hours is a long time to watch a television receiver.

2. The absence of television during recess and lunch hour was a handicap to the program, as was the fact that the observation didn't start until 9:30 A.M., thirty minutes after the school day started.

3. Rotating telecasts from room to room was criticised because of the lack of continuity, follow-up, and the opportunity to become familiar with one set of children.

4. The teachers in the public schools indicated they were subjected to strain when they were being observed. They were aware of the equipment in the room and were aware of their unseen audience. Because of the nature of this audience, and the responsibility they felt toward the college students, they inevitably felt the pressure of their assignment. Further, they prepared guide sheets for use by the college staff and students and worked cooperatively to insure that their classroom work would communicate well on television. The television teachers expressed belief that they should receive some compensation for their extra responsibilities and efforts.

Orientation and Guidance

Technical problems are concrete and tangible, and may be solved. Scheduling difficulties are similarly direct and straightforward. The problem faced by faculty and students of becoming oriented to a new medium, and the additional task faced by the instructors in learning to guide students during observation, brought forth a host of comments difficult to summarize succinctly. In general, the following conclusions may be drawn on the basis of the available evidence:

1. Those faculty members who used television very little retained their original attitude, whether positive or negative, throughout the program.

2. Those instructors who used television more extensively tended to become more and more favorable to television as the program progressed.

4. The students agreed that observation when undirected by an instructor was of little value, but that when the observation was guided and the instructor told the class of observers what to look for and what was important, then the observation experience had meaning and value.

TENTATIVE RECOMMENDATIONS

The following recommendations are based on data obtained for the entire observation program.

Technical Aspects

1. It is normal to assume that perfect picture quality should be maintained at all times, but it is appropriate to indicate that any installation of this size and complexity requires the full time of several technicians; to purchase sub-standard equipment, or to attempt to get by without competent technical help is to beg for difficulties.

2. Ways must be found to reduce ambient noise in the televised classroom. Mats on the floor, directional microphones, and sound-absorbing materials are being considered for experimentation.

3. The problem of the children's awareness of the equipment can be solved by finding ways to quiet its operation. Although it was not tried in the elementary schools during this orientation period, it was found in prior studies (3,5) that if the equipment were left in the classroom for several days the novelty wears off and the children lose interest in it.

4. The problem of viewing close-ups in context may be solved with the suggested technique mentioned above of using two monitors, one for a continuous shot of the whole room.

Scheduling

1. The observation should start when the public school day starts to give students a view of something other than the teaching of a lesson. It should continue through recess and lunch hour, and, if possible, should include the library and playground activities.

2. The public school teachers expended a great effort in preparing bulletin boards and similar visuals, knowing they were being observed by an audience they could not see. This required extra time and effort.

3. Some students were disappointed that no discipline problems arose in observed classrooms; they felt that the situation must, therefore, be abnormal. The children, however, were as aware of the unseen audience

as the teacher and possibly maintained better than normal control over themselves during the day of telecasting. Thus it is recommended that, in spite of the additional burden on the teachers, the classroom be televised for several consecutive days to allow teacher and pupils to adjust to the television equipment.

4. It is recommended that a continuing study be made of the extra responsibilities of the television demonstration teacher to determine the extent to which extra compensation may be necessary or appropriate.

Orientation and Guidance

The success of any television observation project is highly dependent upon the faculty members who are using it. With the faculty rests its direction and its effectiveness, for it is they who determine where and when, indeed whether it is to be used. More important, it is the faculty who must probe and test, experiment and explore, so that the incredibly complex and expensive mass of mere equipment may be shaped into the powerful educating instrument it has the potential of being.

1. Basic to the effective utilization of any machine is a knowledge of its limitations and capabilities. The faculty should be encouraged to familiarize themselves with television, and this could perhaps best be handled with an orientation period solely for them. They should have the experience of directing the cameras, calling shots, and examining the equipment before they are required to direct observation for a classroom full of students.

2. Before the semester's observation period begins the instructors should evolve a clear picture of the things they want television to accomplish. These objectives must be written with the limitations of television constantly in mind, and the more specific they are, the better the instructor is able to perceive how to achieve them.

3. The students need constant guidance. The instructor must utilize methods of fixing the attention on the classroom events being observed. Discussions and short quizzes were found to be effective means of sustaining attention, but it is the instructor who must decide what to view, and much thought and experience are necessary if one is to learn to guide observation effectively.

CHAPTER III

DIRECT TEACHING BY TELEVISION

The direct teaching method in the utilization of closed circuit television was a second major area of exploration in the expanded Instructional Television Project at San Jose State College. Health and Hygiene courses are treated in Section 3, and special television presentations for courses and for campus groups are discussed in Section 4. Two courses in the Engineering Division were selected for purposes of the developmental study; these were Engineering 25, and Engineering 1, which will be discussed in Sections 1 and 2, following.

SECTION 1

ENGINEERING 25

Engineering 25. Materials and Processes. Mechanical, chemical and physical properties of engineering materials. Behavior of materials under various types of loading. Selection of materials for engineering uses. Study of metal casting, plastic molding, powder metallurgy, heat treatment of metals. Three lectures and one laboratory.. Four units; fall, spring. (General Catalog, 1958-59 Bulletin San Jose State College, page 137).

Areas of Concern

Some of the problems existing in the Engineering 25 course that made utilization of the television medium a practical consideration were:

1. Limited Engineering 25 laboratory facilities for an increasing enrollment.
2. Problem of scheduling all lectures necessary to complete material to be covered in the course.
3. Necessity of repeating each lecture demonstration in every laboratory section.

Course Changes

After the decision to use television as an adjunct to the Engineering 25 course was made later in the fall semester, a reassessment of the conventional course structure clearly indicated that this would not be possible unless some major changes were made. To understand more clearly the adjustment necessary to incorporate direct teaching by closed circuit television into the regular course, the conventional course structure and the television course structure will be described briefly.

Conventional Course Structure

Engineering 25 is a 4-unit (three lecture, one laboratory) course. The regular laboratory schedule, based on fifteen full weeks, consists of nine student-performed experiments, with twelve students for each laboratory section, three 3-hour orientation and demonstration periods, one period of demonstration films, one period for laboratory examination, and, if the schedule permits, one make-up laboratory. Also, some technical films are shown during the regular lecture sessions. The instructors are required to repeat demonstrations thirteen times each week.

Television Course Structure

In preparing a schedule for utilization of instructional television it was concluded that it would not be possible to add six or seven television presentations to the conventional schedule and still cover the course material. Accordingly, a new schedule was prepared to include an additional one-hour general assembly period meeting once a week from 12:30 - 1:30 p.m., which all Engineering 25 students were required to attend. The general assembly period was used for six television laboratory demonstrations, four 1-hour examinations, and several engineering films on material related to the course. The additional laboratory time made available by this schedule was devoted to problem and activity sessions related to lecture material. Additional lecture sessions were also made available by the revised schedule. The following are schedules for the demonstration and laboratory periods:

Demonstration & Examination Periods		Lab Schedule	
1st Meeting	Lab Orientation	1st Meeting	Activity Period
2nd "	Hardness - TV	2nd "	Hardness Testing
3rd "	Tensile Testing - TV	3rd "	Tensile Testing
4th "	Heat Treatment (Steel) - TV	4th "	Activity Period
5th "	Examination	5th "	Heat Treatment Steel
6th "	Movies	6th "	Heat Treatment Steel
7th "	Movies	7th "	Heat Treatment Steel
8th "	Examination	8th "	Activity Period
9th "	Casting - TV	9th "	Metallography
10th "	Core Making & Sand Testing - TV		
11th "	Examination		
12th "	Microscopic Examination - TV		
13th "	Review		

Lab Schedule
(continued)

10th	"	Metallography
11th	"	Casting
12th	"	Core Making & Sand Testing
13th	"	Activity Period

Procedure

The technical procedure for the Engineering 25 demonstrations involved using the mobile unit twice and studio type television equipment four times. When the mobile unit was used, the trailer was parked behind the Engineering Building and the camera and audio cables were pulled through a window into the Metallurgy Laboratory. The distribution system cables were run across the roof and dropped through an opening into a closet at the back of the Engineering Auditorium, approximately 300 feet from the laboratory.

When the studio television system was used, cameras, camera controls, modulators, audio-video mixers, and other accessory equipment was transported from Studio Room 34TB to the Engineering Laboratory by truck, an approximate distance of three blocks.

Lighting was furnished by using ColorTran lights in addition to the existing laboratory lighting facilities. Audio was provided by the use of a lavalier microphone worn by the instructor. A two-way communication system was installed in the viewing room by running an audio line from a Newcomb TR-16 transcription unit to the audio operator's position in the laboratory. The viewing room was also provided with three 21-inch Conrac television receivers. Two of the receivers were placed on the outside aisles and one at the front of the auditorium. This latter receiver was replaced later with a 24-inch RCA commercial type receiver.

Evaluation Objectives

There were five objectives in evaluating the Engineering 25 program:

1. To collect technical data on the equipment operation.
2. To keep technicians' time records.
3. To maintain presentation time records.
4. To evaluate, if possible, student reactions, opinions, and suggestions concerning Instructional Television demonstrations.

5. To investigate instructors' reactions, opinions, and suggestions for utilization of Instructional Television based on television experience.

Methods of Evaluation

To satisfy the above objectives the following methods were used:

Equipment. Two kinds of records were kept on the equipment: (1) INDIVIDUAL EQUIPMENT RECORD listed each major item of equipment by number, the hours of operation, out-of-service date and time, repairs: symptom, cause, method of repair, and in-service date and time; (2) CLOSED CIRCUIT OPERATIONS RECORD was a daily record of hours of: assembling and dismantling equipment, rehearsals, transmitting time, equipment on and off time, location, purpose for using the equipment, and the technical staff involved.

Records of Technicians' Time. A daily log where names of the technicians, duty assignments, and hours of service were recorded.

Records of Presentation Time. These records were kept for each studio type presentation. The data were listed in three categories: (1) Action, (2) Number of persons involved, and (3) Time spent.

Under the ACTION category was listed: Visual materials preparation, Teachers' preparation, Program Planning Sessions, Crew briefing, ITV Secretarial work, Director preparation, Technical Operation (Set-up, Rehearsals, Air Work, and Striking).

Students' Rating Scale. The students were given a rating scale at the beginning of each demonstration. This scale was to be checked and turned in before leaving the viewing room. Students were encouraged to make additional comments, or suggestions. At the last demonstration a different method was used. The students were given a questionnaire covering the entire course, to elicit general reactions to the effectiveness of the Instructional Television Project.

Instructors' Evaluations. The instructors' evaluations were based on the summary statements of the three instructors involved in the demonstrations for Engineering 25. Two the the instructors, Mr. James Anderson and Dr. Ralph Parkman, presented the demonstrations; one instructor, Mr. Jack A. Peterson, remained in the viewing classroom. Mr. Anderson and Dr. Parkman alternated teaching presentations, whereas, Mr. Peterson monitored all six presentations.

Results

The results of the six Engineering 25 television presentations will be reported in relation to the Evaluation Objectives previously stated.

Equipment

The reliability of the equipment to date is apparently high. Since the initial installation and adjustment of the equipment, no serious maintenance problems have existed. Minor maintenance problems have been readily solved by the Technical Staff.

Technicians' Time Chart

For the six Engineering 25 presentations the following technical data recorded in the Operational Log indicated that: assembly and transporting equipment from Studio 3⅘ to the Engineering Laboratory 127 required 17¼ man hours; dismantling and returning the equipment to Studio 3⅘ required 23-3/4 man hours; the equipment was on a total of 33-3/4 hours. Of this time five hours and thirty-five minutes were spent in rehearsal, six hours were spent transmitting the presentations, and twenty-two hours and five minutes were spent in testing equipment, trouble-shooting, aligning receivers, and warming up the television system.

The technical assistance required for the Engineering 25 presentation follows:*

Presentation	Technicians	Set-up	Air-Work	Striking
1	TV 3 AV 2	3 2 - 66 hrs.	3 2 - 10 hrs.	
2	TV 3 AV 1	3 1 - 45 "	1 3 - 6 "	
3	TV 2	2 - 35 "	1 1 - 2 "	
4	TV 1	1 - 16 "	1 1 - 2 "	
5	TV 3 AV 1	3 1 - 8 "	2 2 2 - 2:15 "	
6	TV 1 AV 1	1 - 4 "	1 1 1 - 1:30 "	1 1 23:45
		174:00		

*Students from the Radio/TV Department of Speech and Drama were used to replace as many of the regular staff as possible. Due to the problems of student class schedules very little student time could be devoted to these mid-day presentations.

Presentation Time Record

The purpose of keeping a factual record of all activities, personnel and man-hours of work necessary to produce each instructional television presentation was to accumulate enough data to answer the question, "How much does it cost?"

A break-down of all personnel, activities, and man-hours of labor and costs for each of the six Engineering 25 presentations is shown in Table IX. In calculating personnel costs, the actual salaries of these individuals were used. Instructor costs were based on 174 teaching days for 1957-58, eight hours a day, at the Associate Professor pay level of $7700.00 per year.

The hourly rate of equipment operating cost was arrived at by taking the cost of the equipment and the depreciation and obsolescence perfof of five years (2) as an estimate of the effective life of the equipment, and dividing by the number of months of use to arrive at the monthly rate. The monthly rate was divided by the number of hours the equipment was used to arrive at the hourly rate.

The mobile equipment used for two presentations cost $6.91 per hour, three television receivers - $1.25 per hour, total cost $8.16 per hour. The studio equipment, used for four presentations, cost $18.67 per hour, the three television receivers $1.25 per hour, total cost $19.92 per hour.

Since neither of the distribution systems was used for the Engineering 25 presentations no charge was made for this equipment.

Graphic-photographic materials used for the six Engineering presentations cost $15.41. Graphic-photographic man hours of work totaled 16½ hours. Although no conclusions can be reached as a result of these data, a trend toward decreasing cost is clearly evident. According to Table IX, the total cost of the first presentation was $381.33, whereas the total cost of the sixth presentation was only $81.32, a reduction of $300.01. It would appear that even though each of these presentations was developed for the first time, the instructor, as he became familiar with the medium and became television-wise, was able to be selective about material, and economical of his time. Furthermore, the technical team became familiar with the instructor's need and instructional methods, and costly technical time was saved.

In an analysis of actual costs a situation peculiar to San Jose State College may be noted. The mechanics of delivering the equipment to the Engineering Building and returning it to the Studio in TB 34 for each presentation, has been a major item of total costs. If set-up and striking cost were eliminated from the instructional picture the total costs for each presentation would be:

TABLE IX

TIME/COST ANALYSIS
ENGINEERING 25

	Graphic Photo-graphic	Teacher Preparation	Program Planning	Crew Briefing	Secretarial	Director Preparation	Set-up	Rehearsal	Air Time	Striking	Total Cost	No. Students
No. Persons	2	1	2	6	1	1	6	6	7	5		83
Man-hours	5	10	4	4:30	2:15	2	66	5	5:50	10		
Graphic Matr.	3.57											
Cost	25.40	55.40	16.80	13.23	3.94	5.72	178.75	21.79	29.95	26.78	381.33	
No. Persons	2	1	2	5	1	1	6	5	6	3		83
Man-hours	3:30	7	3	2:30	1	1:30	45	8:45	5	6		
Graphic Matr.	1.64											
Cost	17.78	38.78	12.60	1.43	1.75	4.29	101.39	18.48	19.03	15.86	232.93	
No. Persons	1	1	2	5	1	1	7	8	8	2		83
Man-hours	:15	4	1:30	2:30	:45	4	35	16	6:40	2		
Graphic Matr.	2.88											
Cost	.64	22.16	6.45	1.43	1.32	11.44	61.00	35.48	37.66	5.33	185.79	
No. Persons	1	1	2	3	1	1	4	0	6	2		83
Man-hours	:15	1	1:30	1:15	:25	1	16	0	5	2		
Graphic Matr.	5.14											
Cost	.64	5.54	6.62	1.42	.88	2.86	54.44	0	33.53	5.20	116.27	
No. Persons	1	1	2	3	1	2	4	3	5	3		83
Man-hours	2:30	4:30	1	1:30	:20	4	8	3	4:10	2:15		
Graphic Matr.	2.18											
Cost	6.35	24.88	4.37	4.09	.50	11.18	21.58	11.00	36.38	6.12	128.63	
No. Persons	1	1	2	3	1	1	2	0	6	3		83
Man-hours	5	2:30	1	1	:30	1	4	0	5:25	1:30		
Graphic Matr.	0											
Cost	12.85	13.85	4.70	.71	.87	2.86	10.66	0	30.79	4.03	81.32	
TOTALS												
Man-hours	16:30	29:00	12:00	13:15	5:15	13:30	174:00	32:45	31:25	23:45		
Graphic Matr.	15.41	-----	-----	-----	----	-----	------	-----	-----	-----	-----	
Cost	79.07	160.61	51.54	22.31	9.26	38.35	427.82	86.75	187.34	63.32	1126.27	

PRESENTATION	TOTAL COST ALL FACTORS	TOTAL COST - INSTRUCTIONAL NO SET-UP OR STRIKING
1.	$ 381.33	$ 175.80
2.	232.93	115.68
3.	185.79	119.46
4.	116.27	56.63
5.	128.63	100.93
6.	81.32	66.63
TOTAL	$1126.27	$ 635.13

TOTAL SAVING: $491.14 (cost of technical service for setting-up and striking the six Engineering 25 presentations).

Another area where positive trends are evident is in teacher preparation time. It may be noted in Table IX that ten hours were spent in preparation of lesson content for the first presentation, whereas the sixth presentation required only two and one-half hours. As mentioned previously, when the instructors became familiar with the medium and its advantages and limitations, less time was spent in trial-and-error selection of materials and in developing techniques of presentation.

Results of Student Evaluations

Eighty-three regularly enrolled students scheduled in seven laboratory sections of Engineering 25 were involved in the instructional television direct teaching program. A rating scale was developed in an effort to evaluate the reactions and opinions of the students regarding the television demonstrations. The students were encouraged to add any comments or suggestions for the television presentations on the back of the rating scale. A facsimile of the rating scale reporting the results of 335 student responses follows:

TABLE X

RATING SCALE FOR CLOSED CIRCUIT TELEVISION DEMONSTRATION

ENGINEERING 25

The directions to the students stated: Check on the rating scale for each question the response which most accurately expresses your reaction. Use the space below each question and the other side for any comments, criticisms or suggestions which you wish to make. A traditional demonstration is one which is conducted by the instructor, usually from the front of the lecture room.

1.	1.49%	79.7%	18.8%
	The picture was larger than necessary to see clearly.	The picture was of adequate size to see clearly.	The picture was too small to see clearly.

2.	17.3%	51.6%	24.8%	6.6%
	The entire demonstration was easier to observe than one conducted by traditional means.	Parts of the demonstration were easier to observe than one conducted by traditional means.	Parts of the demonstration would be more easily observed in a traditonal demonstration.	The entire demonstration would be more easily observed in a traditional demonstration.

3.	30.15%	55.8%	14.0%
	This procedure held my interest in the topic covered better than a traditional demonstration.	This is about as interesting a way of presenting the topic as a traditional demonstration.	This procedure does not present the topic in as interesting a manner as a traditional demonstration.

4.	36.4%	46.0%	17.6%
	This procedure made contributions to instruction beyond what is possible by traditional means.	This procedure is about as effective instructionally as traditional methods.	Traditional methods make instructional contributions beyond those of this procedure.

Final Questionnaire

The rating scales were the same for the first five presentations. For the sixth, and last, presentation a questionnaire* was developed to test reactions to the entire series of television presentations. The questionnaire used for the final presentation listed twelve questions. The results of the questionnaire, with sixty-eight students responding, follows:

*The questionnaire was modified version of one used to test student reactions of CCTV in Technical Training at IBM, Poughkeepsie, N.Y.

TABLE XI

ENGINEERING 25 - FINAL QUESTIONNAIRE

(Facsimile)

Directions: Please check on the questionnaire the response which most accurately expresses your reaction. Use the back of this questionnaire for any final comments, criticisms, or suggestions you wish to make.

N-68

QUESTIONS	POSITIVE	SAME AS	NEGATIVE
1. I would like more TV sessions (yes - no).	63%	-	37%
2. Since seeing lessons on TV, I am inclined toward TV (more favorably; less favorably; unchanged).	38%	44%	18%
3. I find I learn (less easily; more easily) by TV than regular demonstrations.	56%	3%	41%
4. I found the sessions by TV (ineffective; effective; boring; interesting; difficult to follow; easy to follow).	65%	-	35%
5. I found transition from TV to regular class (difficult; not difficult).	68%	1%	31%
6. There was (good; fair; poor) tie-in between TV and classroom sessions.	69%	-	31%
7. There were (many; not many) points to be cleared up in class.	68%	-	32%
8. The TV sessions (did; did not) help me in Lab work.	79%	-	21%
9. The TV sessions made Lab work (easier; more difficult; less interesting; more interesting; no difference).	53%	43%	4%
10. The TV picture was (satisfactory; not satisfactory).	87%	-	13%
11. I found it (easier; more difficult; the same) to pay attention to TV in later lessons than in earlier lessons.	26%	53%	21%
12. The sound accompanying the picture was (satisfactory; unsatisfactory).	93%	-	7%

Discussion of the Results of the Rating Scales and Questionnaire

Although no definite findings can be offered from such a brief experience, it is apparent that some positive trends have been established. An examination of the Rating Scale shows that 69% of the students felt positively about how much easier the demonstrations over television were to observe as compared to traditional demonstrations. It may be noted that 86% of the students thought that the television procedure held their interest as well as, or better than, traditional demonstration techniques. Furthermore, 80% of the students thought the television procedure made contributions to instruction as effectively, or better than the traditional methods.

An examination of the questionnaire reveals that 63% of the students would like more television sessions. Seventy-nine per cent of the students said that television did help them in their laboratory work, and 53% thought it made their laboratory work easier and more interesting, whereas, 43% felt that if it did not make their laboratory work easier and more interesting at least it made it no more difficult or uninteresting. Fifty-six per cent of the students found they learned more easily by television than in regular demonstrations, and another 3% felt they learned as well by television as in regular demonstrations.

Students Comments, Suggestions, and Criticisms

Students recorded a total of 89 additional comments, suggestions, and criticisms on the rating scales and the questionnaire. The responses for the six presentations fell in two categories: Instructional and Technical-Production. A summary of these student comments follows:

FIRST PRESENTATION (20 comments).

Instructional

1. Charts which were important were hurriedly shown. Since much information is crammed into a small amount of time, we should have slightly longer.

2. A person cannot call for a repetition of anything said. When something is put on the blackboard, it should be left longer to be copied into our notes.

3. Close-up of parts was good, but board work was hard to see. The instructor was not as much at ease as he would have been in class.

4. Speaker spoke too fast in parts of the demonstration.

5. It was better organized than a regular demonstration. The technical terms were run over too fast. (Not enough time to take notes on them). If the writing was done before hand on the board it might have been checked for it was hard to read.

The above comments are typical of all of the student remarks. Of twenty comments listed, eighteen related to pace and difficulty in reading the written material.

Technical and Production

1. Better camera focus is needed; also, a little less material in the allotted time will help.

SECOND PRESENTATION - (Number of comments 32)

Instructional

1. This procedure tends to slow down the instructive rate - more material could have been covered. Lab procedures would seem to best be given in Lab.

2. First demonstration moved too fast for notes - second demonstration moved too slow.

3. Should have mimeographed sheet rather than taking basic notes. Not as organized as first TV lecture.

4. This was more beneficial than first TV program, because instructor talked at a more moderate rate.

Technical and Production

There were thirty-two student comments recorded on the presentation. Of these, twenty-two were in reference to the television receivers (see Appendix Supplement). A sampling of the comments:

1. Better TV adjustment.

2. Picture distorted and not sharp.

3. Picture was not clear; could hardly see outlines at times.

4. Focusing was needed, lecture speed was good. Better understood than last lecture.

THIRD PRESENTATION (Number of comments - 6)

Instructional

1. Well presented.

2. Instructor was more relaxed.

3. This particular type of TV demonstration was more adequate; instructor more relaxed this time.

4. Unnecessary detail in naming apparatus (spelling out).

5. Much improved over the last one.

6. Many observations on TV are impossible due to the short range of vision. I think the traditional method of teaching is better.

Technical and Production

1. Cameras should follow demonstrator more closely and get better shots of his operations.

FOURTH PRESENTATION (Number of comments - 8)

Instructional

1. One disadvantage - questions cannot be asked during a TV demonstration.

2. Would be of advantage to ask questions at times. Might be solved by use of inter-com.

Technical and Production

1. Lighting could be improved.

2. Cameraman did a very poor job.

FIFTH PRESENTATION (Number of comments - 3)

Instructional

1. Factor of course antagonism may have a bearing on these checks (checks on rating scale).

2. Should use cards rather than writing on board.

Technical and Production

1. Glare.

SIXTH PRESENTATION - Final evaluation (Number of comments - 20)

Instructional

1. The TV was good, but the planning that went into the material was poor. The timing of material was still worse.

2. This course would be very excellent if one was not required to memorize every detail of the subject. The present course methods do not create any incentive for the student.

3. Today's was very good.

4. The TV sessions are probably more easily accepted because of their novelty.

5. To me, TV showed only lab procedures that a large group of people could not see at one time.

6. TV demonstrations are too far ahead of class sessions.

7. Would suggest that activity periods (Tues. lab) be better conducted if they are to replace part of lab time along with TV. They are now absolutely useless.

8. If care is not taken to obtain only the best teachers for TV, students will lose interest and be against TV demonstrations. Poor speakers cannot be effective TV demonstrators.

Technical and Production

1. Camera was too close to the subject to see the whole object. Camera shots made it very difficult to get the idea of many points about equipment.

2. Poor TV sets or else not in repair. Can see no reason for a wavy or fuzzy pictures in a closed circuit set up.

3. I found the camera work sloppy at the beginning of the course which made it hard to obtain an overall picture of the machine being explained. Later on, things picked up. Everything considered, I feel that TV has and could be to my advantage.

DISCUSSION OF RESULTS OF STUDENT EVALUATIONS

Instructional

The majority of student criticisms of the instructional part of the presentations are concerned with: (1) pacing, especially in the first two presentations; (2) inability to read clearly the material the instructor wrote on the board. The suggestions that tables, sketches, and other material to be copied should be prepared before class and referred to from time to time in order to allow all students an opportunity to copy the material was a valid suggestions. It may be noted the instructors followed this suggestion and after the second presentation this was never a major point of criticism. It is interesting to note that after the second presentation, the comments were more positive in nature and the suggestions were in relation to improving the television presentations.

Technical-Production

Of the eighty-nine comments written in addition to the rating scales and questionnaire, thirty-six, or 40%, related to technical and production difficulties; 22% of these concerned the television receivers, and with the exception of two, referred to the February 24th presentation. The criticisms concerned "the poor picture definition" of the receivers, although the criticisms were valid, the difficulty was not faulty receivers. Noise in the video lines, and other minor technical difficulties due to the fact that the entire system was still in the process of being installed remained to be

solved. Since that date the equipment has been made entirely operational and only minor technical difficulties have developed. These were quickly solved. The production criticisms listed by the students concerned camera operation.

Summary of Technical Difficulties

Some of the difficulties encountered in presenting the engineering demonstrations were: (1) transportation of the studio television system was expensive in time, man-hours of labor, and wear on the equipment, (2) the available space in the laboratory for setting up the equipment and for camera movement was extremely limited, and (3) because of the fixed position of the larger pieces of laboratory equipment, proper lighting and moving the cameras in close enough to pick up fine detail was almost impossible to accomplish.

Tentative Conclusions on Student Responses

Although no definite conclusions can be reached, as far as student opinions go, some positive trends, based on a fairly accurate sampling of student responses may be stated:

1. It appears from available data to date that television is an effective medium for teaching Engineering 25, Materials and Processes.
2. Students apparently accept television as an effective medium of instruction.
3. Continuing evaluation of student responses is important for their constructive assistance to the project.

Instructors Evaluations of The Television Presentations

The evaluations of the instructors' opinions, reactions, and suggestions are based on three summary statements written after each of the first three presentations, and a final statement written by each of the instructors at the end of the semester. These statements are reported as follows:

INSTRUCTOR 1 - FEBRUARY 17, 1958

Most of the comments which I made for the first TV demonstration given for the Engineering 1 classes on January 16 hold true for this most recent one.

Thus, the lack of resolution by TV for small and perhaps important details of equipment being demonstrated seemed particularly noticeable this time. Again, the lack of mobility of the TV camera was evident in some cases, making it necessary to adapt the demonstration to the limitations of the TV rather than to make the camera work follow what appears to the instructor to be the most effective means of demonstration.

I feel that my teaching techniques thus far have been somewhat inhibited by the requirements of the TV camera, i.e., in trying to keep in mind the best camera angles, proper positioning of my hands

and therefore that I have lacked spontaneity that I feel is present in ordinary classroom presentation. This situation may improve with experience.

One serious defect in yesterday's presentation was lack of sufficient TV floor personnel. It was necessary for Professor Anderson to perform many functions such as changing cards, direction from the floor, etc., which should have been handled by regular TV personnel.

INSTRUCTOR 2 - FEBRUARY 20, 1958

It is hard to judge a TV demonstration from the standpoint of the person presenting it. I feel, however, that the purposes of the demonstration were accomplished: (1) To present equipment demonstrations, (2) To explain hardness, (3) To show principles of hardness testing.

Many things were shown to the students that we have not been able to show before. For example, the Shore Scleroscope and the Monotion have never been explained in our laboratory demonstrations because of the time element. Although for this particular demonstration will help in the future.

Being able to pace the demonstration to allow notes to be taken by the student is one thing that the demonstrator must remember. Not having the students in the laboratory makes it hard to set this pace. We might bring 3 or 4 students into the laboratory during the demonstration to ask questions and to take notes.

I feel the help received from the TV Center has been excellent. Also, the cameramen did an excellent job on this demonstration.

MARCH 24, 1958

The last two TV demonstrations went much better than any presented so far. I believe that the subject matter was of more interest and easier to follow, camera wise, than the previous demonstrations. I am also becoming more camera conscious as well as more relaxed during the demonstrations which has made it much easier on me. The time required to prepare a demonstration is becoming shorter. If the program is prepared well enough, no rehearsals are required. Of course, the crew working on the show has a lot to do with this phase of the demonstration.

After reading the comments, I feel that no matter how good the demonstration there will always be a certain per cent of the students that will not like it. We seem to have several students in this category at the present time. It's bad that we have to rely on the students completely for the evaluation. Some of the remarks are also uncalled for.

Instructor 1

Evaluation of TV Demonstration in Metallurgy

This evaluation is intended to summarize my thought on all of the television programs presented in Engineering 25 this semester. Each factor of importance will be discussed under its own separate heading, and comparisons between television demonstrations, traditional job demonstrations, and filmed presentations will be made.

I. Schedules

Engineering 25 is normally a 4-unit (3 lecture, 1 lab course). The regular lab schedule (based on 15 full weeks available) consists of a minimum of nine student-performed experiments, three 3-hour orientation and demonstration periods, one period of demonstration films, one period for laboratory examination and, if the schedule permits, one make-up laboratory. Also, some technical films have been shown during the regular lecture sessions.

In preparing a schedule for the television demonstrations, Professor Anderson and the writer concluded that it would not be possible to include six or seven television programs in this schedule and still cover the course material. Accordingly, a new schedule was drawn up that included an additional one-hour general assembly period meeting once a week which all Engineering 25 students would be required to attend. This general meeting would be utilized for seven television lab demonstrations, four 1-hour examinations, and several engineering films on materials related to the course. The additional laboratory time thus made available was devoted to problem and activity sessions related to lecture material. Additional lecture sessions were thus also made available.

This has been a desirable arrangement because it has resulted in additional time for course work which we have heretofore been unable to cover in the regular schedule. On the other hand, it is doubtful if this expedient of the extra General Meeting could possibly be applied to all courses which were to be taught by television.

With the extra session, the schedule with television is superior to the traditional schedule. The same advantage would be obtained if the demonstrationswere presented on film.

II. Demonstration Time

With regular Engineering 25 programming, it has been necessary to repeat lab demonstrations as many as 13 times in one week when that many lab sections have been given. The television program has made only one demonstration per week necessary, with a savings in total instructor time devoted to any single demonstration. A similar savings in instructor time would be realized with a filmed demonstration presented to the entire class.

III. Personnel Time

Instructor time devoted to preparation of demonstration material, scripts, etc., has been very high at the beginning. With

added experience and perhaps simpler demonstrations towards the end of the semester, the writer spent time equivalent to that required in the preparation for perhaps two to four lab sections performing the same experiment. With experience and repeat demonstrations the time for preparation should approach the nominal amount required for regular demonstrations.

The television staff, however, also spends considerable time for preparation and performance. This expenditure of time is not needed for either a traditional or filmed demonstration, although considerable technician and professional time would be needed for the initial production of a demonstration film.

IV. Type of Demonstration

Two different types of television demonstrations have been presented by the Metallurgy group.

1. A program designed to show the overall field of Metallurgy to general interest groups such as Engineering freshmen and high school students.

2. Lab demonstrations to regular Engineering 25 students.

It has been my impression that the first type of program was quite successful. There is such a considerable body of general material available in the field of Metallurgy that it was possible to select demonstrations which had good visual appeal and which could be shown clearly over television. The novelty of this type of program was a factor in its favor. The large groups which witnessed these high school and Engineering 1 demonstrations could not possibly have been accommodated in the lab at the same time for a traditional demonstration. A film of this type would not have the novelty effect for these groups, but if the intent were to present the field of metallurgy to high school groups, such a film accompanied by a speaker could be very well shown to a large number of students in high schools and junior colleges. The disadvantage of the film would be the expense of making changes once it had been produced. The lab programs may be less successful than the general program, see (I) above, in certain aspects because of the technical difficulties mentioned in the next section.

V. Technical Aspects

In Engineering 25, certain fundamental lab and lecture material should be shown to the student. It was found that while most things showed up well on the screen, other important features such as small dials, dark-appearing micro-structures, very small specimens, apparatus in motion, etc., were not resolved adequately by the television camera. This did not occur many times but where the lack of resolution occurred, it was often serious, and it is not ordinarily desirable to change the content of fundamental demonstrations to fit the limitations of the television camera. This difficulty would not be apparent in the demonstrations to small groups or in filmed demonstrations.

Camera work was, in general, satisfactory but on several occasions an unclear picture (or no picture at all) appeared on the screen. This can be highly disconcerting to a lecturer and undoubtedly to students as well.

In some cases, space limitations made it impossible for the lecturer to see the monitor. This can also throw the lecturer off pace and is likely to result in a poor picture.

VI. Instructional Techniques

Traditional laboratory demonstrations to small groups often greatly benefit the student by allowing him to touch and operate equipment, immediately after it has been demonstrated to him, if the instructor feels that this is desirable. This helps the student to remember details much more readily than if observed on a screen. Furthermore, there is much better opportunity for the student to ask questions in the traditional lab demonstration to small groups. These are important advantages which are not available with either a television or filmed demonstration.

On the other hand, it should be observed that preparation of a television program gives the average instructor a heightened consciousness of the desirability of augmenting his teaching tactics with the many available visual aids. The teaching effectiveness of many instructors could be notably improved with greater utilization of these aids which our excellent audio-visual department can provide.

V. Summary

A comparison of television with traditional lab demonstrations in Engineering 25 has been made. The writer feels that each method has certain advantages.

The television method has some novelty appeal at the present time, particularly for individual general interest programs; it permits larger numbers of students to observe lab operations at one time, it eliminates the need for many repeat demonstrations by lab instructors, and it gives the average instructor a greater awareness of the importance of visual aspects of teaching. This semester's program has also permitted us to cover material more thoroughly than before, although this advantage comes from scheduling an extra general meeting and not from an inherent superiority in the television technique. It may be noted that some of these advantages might also be claimed for demonstration film.

Disadvantages of the television method appear to lie in many additional hours of technician and professional time required, inability of television camera to bring out some important fine details of equipment, inability of students to be directly on the scene for questions and for closer observation or even operation of equipment.

Instructor 2

Evaluation of Television Demonstrations in Engineering Metallurgy - May 27, 1958

This is the final evaluation of the television programs given in Engineering 25 this semester.

Schedule of Laboratory and Demonstration

Engineering 25 at the present time consists of three hours of lecture and three hours of lab per week. Because of the need to evaluate the use of television in Engineering, it was decided to add an extra hour to the students schedule for a general meeting where television demonstrations could be given. This has worked out very well this semester because it not only gave us a chance to demonstrate laboratory techniques to all the students as a group but it helped in scheduling of movies and examinations. The students feel, however, that this extra time which is given to the course should have some unit value. It was explained to the students at the beginning of the course that some of the laboratories would not run the full three hours which would make up for the extra time spent in the general meeting.

One of the other advantages was that we could schedule four activity periods where we could emphasize the more difficult parts of the course. This amounted to extra time that we could spend on these principles. It is extremely difficult to make up a schedule where we can show laboratory techniques before we do the experiments in the laboratory. However, this semester we were able to do this. We have been able to have more lecture sessions than ever before which we feel has helped the students in the understanding of principles of this course. This is reflected in the slightly higher grade average of the students. With the set up of the extra meeting, I feel that the television schedule is much better than the traditional schedule.

Time Required

In preparing the first few television demonstrations the time required by the instructor was quite high. In fact, I felt that it was not worthwhile because of the extra time involved with rehearsing, writing the script and preparing samples. The time spent is much greater than the preparation for a traditional demonstration. As the programs progressed this time was cut down considerably. I also feel that next fall when we repeat the television demonstrations that the amount of time will be considerably less.

Comparisons of Demonstrations

In comparing the traditional and television demonstrations, it was my impression that the students received more instruction from the television. We were able to demonstrate so that every student could see what was going on plus the fact we could demonstrate more things than we have in the past. This was particularly true in the hardness testing demonstration. The television pictures were large enough and the students, by grouping themselves around each set, could see each operation clearly. The greatest difficulty in

conducting these demonstrations was the use of different cameramen for each program. If, at the beginning of the semester, two or three cameramen could be assigned permanently, this would help in much more coordination between the instructor and the cameraman.

I feel that the high percentage of favorable comments received for this type of demonstration could be due to the novelty associated with it. The evaluation of this type of television demonstration should be studied further. It is hard to take a program of this type and give any evaluation grade wise to the students. Traditional demonstrations for small groups are much better because they allow the student to come in contact with the equipment and instructor but I feel that the instructor prepares himself much better when he is required to give television demonstrations.

One of the great advantages of television demonstrations is that the instructor most qualified in his particular field will give the demonstration. This means that the student obtains the best possible instruction.

Technical Difficulties

One of the biggest technical difficulties was in training the cameramen to pick up the equipment so that the students could: first, get an overall view of the equipment, and, secondly, a view of the smaller features of the equipment. This, of course, comes from training and instruction. It is extremely difficult to pick up objects such as dials and dark micro-structures, etc. This would not be a difficulty when giving traditional demonstrations.

Time must be arranged so that more can be given to (1) setting up the equipment, and (2) rehearsing. Other technical difficulties encountered during the program were of a minor nature. I feel that after using the equipment and working out the technical difficulties of the equipment that the programs will be much smoother.

Summary

1. By using television demonstrations much more material can be presented to the students than ever before.
2. If more programs are produced the time required for the instructor will become less.
3. The best instructor gives the television demonstrations.
4. Students can see much more by television demonstrations if handled properly.
5. The disadvantages in television lie in the time required by the technical staff in setting up and preparing for the show.

Discussion of Results of the Instructors' Evaluations

The instructors' evaluations are self-explanatory, and only a few points regarding the disadvantages of the television medium as listed by the instructors will be discussed:

1. The technical time required in setting up and preparing for the show.
This point has been discussed previously.

2. Inability of the cameraman to pick up fine details.

On several of these presentations Radio/TV students were used as cameramen, and although these students were interested, and tried hard to do a superior job on these presentations, they had not yet had sufficient training and experience to perform intricate camera work. Limited space which inhibited camera operation was a disturbing factor for these students, consequently their camera work at times may have been faulty; yet it should be remembered that the production personnel were working for the first time at this kind of situation. The ability of the television medium to make "small things large," and to pick up fine detail has been proven by numerous research studies, thus it must be concluded that the fault was with the cameraman and possibly with the television system during the initial period of operation.

3. Students were unable to ask questions.

An intercommunication system was set up for students to ask questions of the demonstration instructor; unfortunately the instructor in the viewing room had no orientation in using this facility and, consequently, the question and answer part of the presentations was not successful.

Tentative Conclusions

As a result of the instructors' evaluations it seems fair to assume that certain tentative conclusions can be drawn:

1. That the advantages far outweigh the disadvantages of instructional television as an effective teaching medium for Engineering 25, Materials and Processes.

2. That to date the instructors have accepted the television medium as an effective adjunct to instruction in Engineering 25.

3. Instructors make a rapid transition from classroom teaching and methods to television teaching.

4. Instructors must have practice in teaching by television before gains can be realized either in instruction or in economy of instructor time.

5. That the successful utilization of the television medium for instruction is based on the following provisions:

and striking the demonstration and television equipment.

4. To check and adjust all equipment, especially the television receivers in the viewing room, before the presentation to assure the instructor that the presentation will not be distorted, distracting, or interrupted during the demonstration.

As a result of the instructor, everything should be ready to assure that satisfactory conclusions can be drawn:

1. That the audiovisual aids highlight the objectives of instructional television as an effective teaching medium for Engineering 25. Materials and processes.

2. That the successful utilization of the television instruction is based on the following principles:

a) Careful selection and preparation of course content.

b) Charts, graphs, diagrams, and written materials prepared before the television lesson.

c) Constant revision and improvement of materials.

d) Awareness of the visual impact of the television medium.

e) Practice in pacing the television presentation.

Tentative Recommendations

Based on the results of the findings of six direct teaching presentations in Engineering 25, the following tentative recommendations are made:

1. Develop a workable two-way communication system for the question and answer period of the presentation.

2. Provide the same technical team to work with the instructor on each presentation, if possible.

3. Develop a routine for economy of effort in setting up and striking the demonstration and television equipment.

4. Instructors make a rigid distinction from classroom teaching methods of television teaching.

5. That of date the instructors even accepted the television medium be an effective influence of instruction at Engineering 25.

SECTION 2

ENGINEERING 1

Closed circuit television for direct teaching as previously described for the Engineering 25 course was also used in a second course, Engineering 1. The procedure and methods of evaluation for the two courses were the same, but the methods of presentation differed. The Engineering 25 demonstrations were each presented once, whereas the same Engineering 1 demonstration was presented on three different occasions. The following report describes the results of a well-planned initial demonstration when it is repeated.

Engineering 1. Engineering Preview. A study of the engineering profession, its requirements, opportunities and responsibilities. A preview of the application of the basic sciences to engineering problems. Training in problem solution. Lectures by practicing engineers. Individual counseling regarding career selection. Two units; fall, spring. (General Catalogue, 1958-1959 Bulletin, San Jose State College, p. 136)

Areas of Concern

This year with a new major in Engineering Metallurgy, it was believed that one period of the class should be devoted to this profession. The utilization of television in the Engineering 1 course was based on the following considerations:

1. Laboratory demonstrations were necessary in order to present certain important processes in the field of metallurgy.

2. Engineering laboratory facilities could not accommodate an estimated enrollment of 150 students in Engineering 1.

3. The only possible method of bringing the laboratory to the students was through the closed circuit television medium.

Course Changes

No course changes were necessary for Engineering 1. The following is the schedule of presentations:

Metallurgy As A Career: January 16, 1958 - 11:30 A.M. - 12:20 P.M.

March 21, 1958 --- 7:30 P.M. - 8:20 P.M.

May 22, 1958 ---- 11:30 A.M. - 12:20 P.M.

Procedure

The procedure for the Engineering 1 presentations was the same as reported for Engineering 25, with the exception that the mobile unit was used as a control center for the first demonstration, and a large screen television projector was added to the four 21-inch RCA receivers rented from a local company for this presentation. The studio console equipment was used for the subsequent two presentations, and two 21-inch Conrac and one 24-inch RCA receiver were used for viewing in the auditorium.

Evaluation Objectives

The five objectives for evaluating the Engineering 1 presentations were the same as reported for the Engineering 25 presentations.

Methods of Evaluation

The methods of evaluation for the Engineering 1 demonstrations were the same as reported for Engineering 25 for equipment, records of technicians' time, and records of presentation time.

Student Rating Scale

Students were given the same kind of rating scale used in Engineering 25. This rating scale was used in the first demonstration; the following two demonstrations were not evaluated by the students.

Instructors' Evaluations

For the Engineering 1 demonstrations, Mr. Anderson and Dr. Parkman jointly conducted the first presentation, after which they each prepared a summary statement expressing their opinions concerning the presentation. Mr. Anderson conducted the following two demonstrations and no summary statements were prepared since a final statement was submitted May 27, 1958.

Results

The results of the three Engineering 1 presentations are reported in the same manner as for Engineering 25.

Equipment

The equipment operated as reliably for the Engineering 1 presentations as for Engineering 25.

Technicians Time Chart

For the three Engineering 1 presentations technical data recorded in the Operational Log indicated that: assembling, transporting, and installing equipment from Studio 3⁴ to the Engineering Building required a total of 66⅔ man-hours;

TABLE XII

TIME/COST ANALYSIS
ENGINEERING 1

	Graphic Photo-graphic & Material	Teacher Preparation	Program Planning	Crew Briefing	Secretarial	Director Preparation	Set-up	Rehearsal	Air Time	Striking	Total Cost	No. Students
No. Persons	1	2	3	7*	1	1	6	13*	13	3		200
Man-hours	5:30	50	19:30	7	1:30	4	57	22:45	9:45	12		
Cost	13.97	484.00	90.61	7.00	2.62	11.44	154.37	29.88	29.89	32.76	856.54	
	*Students (5) - No Charge											
No. Persons	0	1	2	0	1	1	7	7*	8*	1		150
Man-hours	0	:30	1	0	1	2	7	10:30	8	1		
Cost	0	2.77	4.20	0	1.75	5.72	5.33	16.30	36.82	2.73	75.62	
	*Students (5) - No Charge											
No. Persons	0	0	0	3	0	1	1	0	7*	3		150
Man-hours	0	0	0	:45	0	:30	2:30	0	5:50	1:30		
Cost	0	0	0	.71	0	1.43	6.17	0	36.23	3.95	48.50	
	*Students (4) - No Charge											
TOTAL												
Cost	13.97	486.77	94.81	7.71	4.37	18.59	165.87	46.18	101.76	39.35	980.66	500

dismantling and returning the equipment to Studio 3⅘ required a total of 14½ man-hours. The equipment operated a total of 49 hours; of this time 3½ hours were spent in rehearsal, 3 hours were spent in transmitting the programs, and 42½ hours were spent in testing, trouble-shooting, and warming up the equipment. The technical personnel required for the Engineering 1 presentations follows:

Presentation	Technicians	Set-up	Air-Work	Striking
1	TV 3	3	3	3
	AV 2	2	2	2
2	TV 1	1	1	1
3	TV 3	1	1	3

Presentation Time Record

Data for the Presentation Time Record was compiled in the same way for Engineering 1 as reported for Engineering 25. The following chart gives a detailed record of the time in man-hours, and cost of all elements of each presentation. The first demonstration according to the data shown in Table XVI cost $856.54, whereas the total cost of the same presentation repeated for the third time was only $48.50, a total saving of $808.04. There were savings in all areas evaluated, but major reductions in cost were made in teacher preparation, program planning, set-up, and striking. It would appear that after the expense of an initial well-prepared demonstration subsequent presentations of the same demonstration are relatively inexpensive. Although the total cost of the first demonstration may appear exorbitant, an explanation of some of the many difficulties encountered with this presentation may help in understanding the situation.

1. The instructors were using the television medium for the first time and spent twenty-five hours each in preparation of materials for the demonstration, and an additional six and one-half hours each in planning the program sequence.

2. The mobile unit was used for this presentation although the installation of equipment was not complete. (It was not until February 14 that the mobile unit was considered operational.) The equipment had been received at the College on January 2, and the demonstration was presented January 16; there had been little time to check and align the equipment thoroughly, thus an excessive amount of technical time was spent by three television technicians and two audio-visual technicians to make the system operational after it was installed in the Engineering Laboratory.

The second demonstration was presented on March 21, 1958, and the total cost was $75.62. The instructor preparation

required for this repeated demonstration was only thirty minutes. The studio television system was used and no technical difficulties were encountered, since the equipment had been in use several times and was completely operational.

The third demonstration was presented for a total cost of $48.50. The difference in total cost for the first demonstration and same demonstrations repeated may be shown by the following method:

	Total Cost	Saving
First Demonstration	$856.54	
Third Demonstration	48.50	$808.04
First Demonstration	$856.54	
Second Demonstration	75.62	$780.92
Second Demonstration	$ 75.62	
Third Demonstration	48.50	$ 27.12

Based on those findings, it may be tentatively concluded that a well-prepared initial demonstration can be repeated with substantial reduction in costs.

Results of Student Evaluations

The first demonstration in Engineering 1, Metallurgy As A Career, was presented to two-hundred college students, high school students, and interested college personnel. A rating scale was developed to evaluate the opinions and reactions of the audience viewing the demonstration. Of the two-hundred rating scales given to the viewers, one-hundred fifty-nine were returned completed, and many with additional remarks, at the end of the demonstration. The results are shown in Table XIII.

TABLE XIII

RATING SCALE

ENGINEERING 1

1.	5% / The picture was larger than necessary to see clearly.	91.% / The picture was of adequate size to see clearly.	5% / The picture was too small to see clearly

2.	22%	53%	22%	3%
	The entire demonstration was easier to observe than one conducted by traditional means	Parts of the demonstration were easier to observe than one conducted by traditional means	Parts of the demonstration would be more easily observed in a traditional demonstration	The entire demonstration would be more easily observed in a traditional demonstration
3.	53%	38%	9%	
	This procedure held my interest in the topic covered better than a traditional demonstration	This is about as interesting a way of presenting the topic as a traditional demonstration	This procedure does not present the topic in as interesting a manner as a traditional demonstration	
4.	56%	32%	12%	
	This procedure made contributions to instruction beyond what is possible by traditional means	This procedure is about as effective instructionally as traditional methods	Traditional methods make instructional contributions beyond those of this procedure	

The second demonstration made on March 21, and the third presentation made on May 22, 1958, for 150 college and high school students attending each presentation, were not evaluated.

Discussion of the Results of the Rating Scale

Since only the first demonstration was evaluated, the data cannot be regarded as a valid sampling of reactions or opinions of the Engineering 1 students for the entire television program. Extremely high positive results were obtained by this scale. For example: 75% of the viewers thought that the entire presentation, or parts of the presentation, were easier to observe by television than one conducted in the traditional manner; 91% of the viewers reported that the procedure held their interest better than, or as well as, a traditional demonstration; and 88% felt that this type of presentation made contributions to instruction beyond, or as effectively as, the traditional methods.

These responses may indicate general approval for the television method of presenting important processes in the field of metallurgy, however, or they may have been based on the novelty factor since this was the first time this procedure had been attempted.

Students' Comments, Suggestions, and Criticisms

The students recorded a total of 270 additional comments, suggestions, and criticisms on the rating scale for the first demonstration on Metallurgy As A Career. Of these responses,

123 were favorable to this presentation (positive), and 147 were unfavorable (negative). The responses fell into three categories:

POSITIVE	PERCENTAGE	NEGATIVE	PERCENTAGE
1. Technica Considerations	69%	1. Technical Considerations	65%
2. Direction and Production	11%	2. Direction and Production	23%
3. Instruction and Instructional Techniques	20%	3. Instruction and Instructional Techniques	12%

The entire list of positive and negative responses is given in the Appendix Supplement.

Instructors' Evaluations of the First Engineering 1 Presentation

The instructors' evaluations for the first Engineering 1 presentation are reported in their entirety:

INSTRUCTOR 1

Engineering 1

January 16, 1958

In my opinion closed circuit television is very suitable for the type of demonstration given today in the Metallurgy department. Its primary advantage over ordinary laboratory demonstrations lies in the ability to show a particular operation to a large number of people at the same time. In the course of ordinary laboratory demonstrations it has been necessary to repeat each demonstration for every lab section in any one course. This has amounted to 13 repeat demonstrations per week for the Engineering 25 classes this past semester. It has not been found practicable to demonstrate most techniques to any more students than there are in a regular lab section (12) because those in the back have so much difficulty seeing and hearing. Also the cooperation of the audio-visual department made possible certain interesting special effects which we do not ordinarily have.

On the other hand, it is my opinion that many techniques can be best demonstrated to small groups in the ordinary manner—particularly when it may be useful for the student actually to touch and perhaps even operate the equipment immediately after its use has been shown. In addition, many of the important fine details of some operations, such as dials or small gauges, do not appear to be well resolved by the television camera, and the cameras do lack some mobility. Furthermore, I feel some students may be more reluctant to ask questions in large groups than in small.

One of the greatest drawbacks of the television method appears to be the inordinate amount of preparation required of the already heavily loaded instructor. I spent approximately 25 hours preparing

for this demonstration of less than one hour. I would expect that on repeat performances this time would be considerably decreased, but it would need to be increased considerably to make this technique desirable as a regular thing.

INSTRUCTOR 2

January 16, 1958

In my opinion ---

I do not believe that the demonstration was worth the time spent. (What I mean here is, that I could have prepared a lecture in less time but that the demonstrations of technics and equipment would be missing.) It involved 35 hours on my part because I was not familiar with the process of setting up a show. Next time the time will be less. The help we received from the Instructional Television Staff and Audio-Visual Service Center was above average. If this type of help will be given next semester, I feel that the Engineering 25 demonstration will be a success.

One point that will have to be cleared up is more preliminary work must be done with the cameramen on angles, etc., when demonstrating equipment. This will come with practice. As I look back on the demonstration just concluded, the only difficulties have been technical (equipment, etc.). I have heard many excellent comments on the program material, camera work, demonstrations, audio, but the criticism has been mainly the technical difficulties encountered during the demonstration.

I feel that this demonstration gave me many answers to questions which I had in my mind about the spring semester programs. I can now approach these demonstrations with more of a confident feeling. I may have been a little bitter in my first statement, but I do feel that the program was educational to the class and they derived some benefit from the experience along with the people who worked on the program.

Discussion of the Results of the Instructors' Evaluation

The instructors' evaluations reflect the many technical difficulties encountered in the early demonstrations. These difficulties have been discussed at length in this report and in the report of Engineering 25 demonstrations. The short time required to set up for the second presentation, seven hours, as opposed to fifty-seven hours for the first one, and only 2½ hours to set up the third presentation, would indicate that the technical difficulties were solved satisfactorily.

The second disadvantage of television, listed by both instructors, was the inordinate amount of time required to prepare for the initial demonstration. The data revealed that only 30 minutes were spent in teacher preparation for the second demonstration and no time was required for the third one.

Tentative Conclusions

No definite conclusions can be drawn for such a short period of operation, but certainly some very positive trends are shown by these data.

1. An initial well-prepared demonstration can be repeated at a substantial reduction in costs for repeated presentations.

2. Instructors need orientation to the television medium as a teaching aid.

3. Instructors make a rapid adjustment from conventional classroom teaching to teaching with television.

4. Presenting the same demonstration to large groups several times may be an effective method of utilizing and saving faculty time and energy.

Tentative Recommendations

Based on the data reported for Engineering 1, the following tentative conclusions may be made:

1. Initial Engineering demonstrations should be so well-prepared they can be repeated as necessary with teacher preparation devoted only to bringing the demonstrations up-to-date as the occasion warrants.

2. Large groups of students could be scheduled in Engineering Laboratory Television sections to facilitate a more efficient and effective utilization of faculty time and to reduce the cost per student for lecture demonstrations.

SECTION 3

HEALTH AND HYGIENE

The Health and Hygiene Department utilized the television studio and closed circuit system to give seven direct teaching presentations to students regularly enrolled in three courses. Three presentations were given in Health and Hygiene 194, School Health Program, one in Health and Hygiene 127, Health Science Techniques, and three in Health and Hygiene 101, Child Growth and Development.

The College Catalog describes the three courses as:

> Health and Hygiene 194. School Health Program. Analysis of the program of the school which provides health services, healthful school environment, and health education in the interest of health of the school child and school personnel . . .
>
> Health and Hygiene 127. Health Science Techniques. Students study, prepare, conduct, evaluate experiments in the field of health science and learn to use a variety of techniques . . .
>
> Health and Hygiene 101. Child Growth and Development. Normal growth and development with emphasis upon children of school age . . .

Areas of Concern

One of the objectives of the developmental study was to explore the operational and educational potential of the television medium in areas other than teacher education. Health and Hygiene was an area where the television medium seemed to have potential value. Some of the problem areas in this Department were:

1. Increasing enrollments.
2. Limited school observation opportunities.
3. Classes so closely scheduled in the three classrooms in the Health and Hygiene Department that time was limited for demonstrations, special guests, or other presentations of value.

The instructors in Health and Hygiene were willing to explore the possibility of utilizing the television medium in three courses where course content could be enriched by special presentations, demonstrations, and specialists in various related fields.

Scheduling

Health and Hygiene scheduled the large group viewing Room 55 in the Education Building for Wednesday and Friday from 1:30-2:30 p.m. for multi-section viewing. School Health Program (Health and Hygiene 194) was scheduled for Wednesday, and Child Growth and Development (Health and Hygiene 101) was

scheduled for Friday. Health Science Techniques (Health and Hygiene 127) was scheduled to meet in their regular classroom, Room TB 25.

The direct television teaching schedule finally developed for Health and Hygiene was:

Date	Subject	Course	Time
March 12	Teaching Techniques	H.H. 194	1:30-2:20 Wednesday
March 17	Pathology	H.H. 127	11:30-12:20 Monday
March 26	School Health Program	H.H. 194	1:30-2:20 Wednesday
March 28	Skeletal Growth	H.H. 101	1:30-2:20 Friday
April 11	Dental Health	H.H. 194	1:30-2:20 Friday
April 16	School Health Screening	H.H. 194	1:30-2:20 Wednesday
April 25	Pediatrics	H.H. 101	1:30-2:20 Friday

Procedure

All the Health and Hygiene teaching presentations originated in the Instructional Television Studio, Room TB 34. Lessons were transmitted to the large group viewing Room 55 and to Room 25 over the on-campus distribution system.

Two manually controlled cameras and other regular studio facilities were used. The signal was delivered by RF (video and audio mixed) to four 21-inch Conrac receivers strategically located in Room 55 and to one 21-inch Conrac receiver in Room 25. Inter-communication for questions and answers was provided by the Pacific Telephone and Telegraph Company communication system between the viewing rooms and the Control Room in Studio 34.

Methods of Evaluation

All technical and equipment data were recorded as previously described.

Student Evaluations

The students in Health and Hygiene 101 were given a pre-test and a post-test (previously described) on which they were to evaluate all observations, public school and studio. The results of the pre- and post-tests have been fully described in the Health and Hygiene Instructional Television Observation Program section, and they will not be reviewed here. Some of the students wrote comments concerning the studio presentations on the tests, and a summary of those comments will be reported in this section. The other two course instructors required no evaluation by their students, other than class discussion and verbal comments.

Instructors' Evaluations

The instructors were requested to keep an "ITV Diary." The Diary, previously described, contained questionnaires, conference records, and comments, suggestions, and recommendations.

Results

The results of the seven Health and Hygiene direct teaching presentations by television are reported, and all operational and instructional aspects are described in the following pages.

Equipment

Since the initial installation and adjustment of the studio equipment, performance has been relatively high. The technical staff solved minor maintenance problems as they developed.

Technicians' Time Chart

For the seven Health and Hygiene direct teaching presentations by television the following technical data recorded in the Operational Log indicated that: setting up the studio for the presentations took a total of 65 man-hours, striking the sets took 5 man-hours. The equipment was on a total of 27 hours; of this time, one hour and forty-five minutes was spent in rehearsal, seven hours and twenty-five minutes for transmitting, and seventeen hours and fifty-minutes were spent in warming up the equipment, trouble-shooting, and testing. The technical assistance required for the Health and Hygiene presentations follows:

Presentation	Technicians	Set-up*	Air-work	Striking
1	TV 1	4:00	:50	1:00
2	TV 1	3:00	:40	1:00
3	TV 1	5:00	:45	:40
4	AV 1		1:30	
	TV 1	3:00	1:30	0
5	TV 3	5:00	1:45	:20
	AV 1			:20
6	AV 2	4:00	:45	0
	TV 1	4:00	:45	
7	TV 1	2:30	:50	1:00

*The set-up time listed is for technicians. Usually the director, and on one occasion a student, assisted with the set-up. The time for all individuals is reported in Total Man-hours above.

Presentation Time Record

A break-down of all personnel, activities, man-hours of labor, and costs for each of the seven Health and Hygiene presentations is shown in Table XIV.

In calculating personnel costs, the actual salaries of these individuals were used. Instructor costs were based on 174 teaching days for 1957-58, eight hours a day, at the Associate Professor pay level of $7700.00 per year.

The hourly rate of equipment operating cost was arrived at by taking the cost of the equipment and the depreciation period of five years (2) as an estimate of the effective life of the equipment, and dividing by the number of months of use to arrive at the monthly rate. The monthly rate was divided by the number of hours the equipment was used to arrive at the hourly rate.

The studio equipment used for all presentations cost $18.67 per hour, the four television receivers cost $.95 per hour, and the on-campus distribution system cost $.99 per hour. The total equipment cost per hour was $20.61.

Graphic-photographic materials for the seven presentations was $10.87. Graphic-photographic man-hours of work totaled 17½ hours. According to Table XIV, the total cost for Health and Hygiene 194, three presentations, was $524.34; for Health and Hygiene 127, one presentation, $91.43; and for Health and Hygiene 101, three presentations, $357.58.

Health and Hygiene Presentations Described

The first Health and Hygiene presentation was given on March 12 for Health and Hygiene 194, School Health Program.

The objectives of the presentation were:

A. General Objective:

To promote a desire on the part of the students observing the television program to learn how to use varied teaching techniques in their future work.

B. Specific Objectives:

1. To demonstrate role-playing.
2. To demonstrate problem-solving.
3. To demonstrate a buzz-session.
4. To demonstrate educational games.
5. To demonstrate the self-test.

TABLE XIV

TIME/COST ANALYSIS
HEALTH & HYGIENE

	Graphic Photo-graphic	Teacher Preparation	Program Planning	Crew Briefing	Secretarial	Director Preparation	Set-up	Rehearsal	Air Time	Student	Striking	Total Cost
No. Persons Man-hours	1 1	3 15	3 3	6* 3	1 :[illegible]	1 2:30	3 12	8 8	13 10:30	90	1 1	
Cost	2.88	83.10	13.94	1.43	1.10	7.15	21.32	16.41	37.02		[illegible].86	187.21
No. Persons Man-hours	2 3:20	Guest Guest	1 4	4* 3	1 1:10	1 5:30	2 [illegible]	0	7 4:40	30	2 2	
Cost	11.09	0	11.44	2.86	1.75	15.73	16.77	0	2[illegible].20		5.59	91.43
No. Persons Man-hours	1 :15	1 6	2 1:30	0	1 :15	1 2	2 10	11 8:15	11 11	90	0	
Cost	1.04	33.24	6.30	0	.44	5.72	26.65	6.30	29.01	90	0	108.70
No. Persons Man-hours	2 10:30	1 20	3 3:45	4* 3	1 :45	1 3	2 6	0	7 10:30	126	1 :15	
Cost	37.22	110.80	17.43	.95	.58	8.58	15.99	0	34.21		.72	246.48
No. Persons Man-hours	1 2:30	Guest	1 1	3* 1:30	1 :10	1 :30	2 10	0	5 8:45	126	4 1:20	
Cost	10.39	0	2.86	1:43	.35	1.43	26.65	0	23.47		2.66	69.24
No. Persons Man-hours	0	2 24	2 2	3* 1:30	0	1 :30	4 16	0	10 7:30	90		
Cost	0	132.96	8.40	1.43	0	1.43	44.20	0	40.01			228.43
No. Persons Man-hours	0	Guest	2 2	4* 1:40	0	0	2 5	0	11 9:10	126	2 1	
Cost	0	0	4.29	1.43	0	0	7.99	0	26.55		2.60	41.86
TOTAL COST	82.62	360.10	64.66	9.53	4.22	40.04	159.57	22.71	216.47	678	14.43	

*Radio-TV Students: 15 different students were used as cameramen, floor directors, audio operators, etc. for the 7 H&H presentations.

The program was presented by the following Health and Hygiene instructors: Dr. Marston A. Girard, Dr. Jack Smolensky, and Dr. Louis J. Peterson, for ninety students in three sections of Health and Hygiene 194. The program format followed the outline of objectives above. A socio-drama was enacted by Mr. Julius Menendez, and four students from the Physical Education Department demonstrated boxing safety.

The second presentation was given on March 17 for the course in Advanced Hygiene, Health and Hygiene 127. The objectives of the presentation were:

A. General Objectives:

To develop in college students a better understanding of positions open in the field of histology; specifically, the definition of a pathologist and their duties, and a histological technician and his duties.

1. The pathologist will present this to more than one advanced class in hygiene at the same time, and will be able to present details of scientific procedures that would be impossible to present in a classroom demonstration.

2. This experience can best reach the students by one television program because of the limited availability of the professional persons, and heavy, expensive equipment involved.

B. Specific Objectives:

1. The specific purpose of this step is to develop through visual aid a complete understanding of the processing of tissue specimens for study and diagnosis.

2. To demonstrate the various ways and means of diagnosis of disease with the aid of tissue slides, surgical biopsies, and autopsies.

The program was presented by Donald Alcott, M.D., and Mrs. Winifred Smith, from the Santa Clara County Hospital. Dr. Alcott is a pathologists, and Mrs. Smith is his technical assistant. The laboratory equipment brought from County Hospital for this presentation included: an Auto-Technicon, Microtome, fixation jars and solutions, tissue embedding materials, and demonstration tissue slides.

The third presentation was given on March 26 for Health and Hygiene 194, School Health Program. The objectives of the presentation were:

A. General Objective:

To enable college students to observe the school age child.

B. Specific Objectives:

1. To observe nervous, fidgety child in a classroom.

2. To observe the cumulative record on the child as the nurse describes it.

3. To observe the teacher conferring with the school nurse and reviewing the cumulative record.

4. To develop in students an understanding of the cumulative record and the teachers and nurses develop in students responsibility in keeping these records.

5. To instruct the students on the physician's role in giving eye-ear examinations.

6. To give the students insight into the teacher - nurse-parent conference.

7. To observe pupil's corrected handicaps, his new attitude, interests in his work, etc.

The presentation was made by: Dr. Jack Smolensky and the following guests: David McKell, M.D.; Elsie D. Hoeck, P.H.N.; Mrs. Helen B. Smith, P.H.N., all from the College Health Service, and Miss Rose, Mrs. Marston Girard and her son, Chris.

The fourth presentation was given for the course Health and Hygiene 101, Child Growth and Development, on March 28. The objectives of the presentation were:

A. General Objective:

To provide students with an understanding of growth principles, procedures for weighing and measuring, and procedures for recording and charting growth levels on Wetzel Grids and other charts.

B. Specific Objectives:

1. To provide students with an opportunity to observe growth and development in children and how it can be measured through television since previously no other means for observing growth and development of school age children has been provided by our College.

2. To present a demonstration lesson of procedures necessary for measuring growth of school children to nine or more classes simultaneously, thus saving duplication of equipment and duplication of teacher presentation.

The presentation was given by Mrs. Jean E. Lees, Department of Health and Hygiene instructor, for 126 students in Health and Hygiene 101.

The fifth presentation was also for Child Growth and Development, Health and Hygiene 101.

A. General Objective:

To develop enthusiasm in our future teachers and parents for better dental health in children.

B. Specific Objectives:

1. To develop in students an understanding of the development of the teeth by a lecture most prolifically illustrated by an outstanding dental surgeon.

2. To provide an expert in dental health to nine or more sections (through television) which would be impossible to do in each class individually, and would be impossible to see in large groups.

The presentation was given to 126 students in Health and Hygiene 101 by Dr. R. T. Dunkin, Dental Surgeon.

The sixth presentation was given for Health and Hygiene 194, School Health Program, on April 16, by Dr. Marston Girard and Dr. Jack Smolensky, Health and Hygiene instructors, and Mrs. Helen Smith, P.H.N., College Health Service. The objectives of the presentation were:

A. General Objective:

To help students develop understandings and skills of vision testing and ability to observe vision defects and other eye difficulties by means of watching and following demonstrations on vision screening as given by a school nurse on television.

B. Specific Objectives:

1. To demonstrate proper lighting in the classroom.

2. To demonstrate proper use of the Snellen chart in the classroom vision testing atmosphere.

3. To demonstrate the purposes of other vision testing equipment which cannot be conveniently brought into the college classroom.

The program was presented to 90 students in Health and Hygiene 194.

The seventh presentation was given for Health and Hygiene 101, Child Growth and Development, on April 25 for 126 students. The objectives of the presentation were:

A. General Objective:

To provide future teachers and students with realistic experience in learning more about growth and development.

B. Specific Objectives:

1. To develop in students a realization and appreciation of the diagnostic methods used by the pediatrician to determine levels of maturity and status of health in children. This telecast was a demonstration by a pediatrician as he examined children and explained his findings.

2. To provide an expert doctor in the field of child health which by one presentation can be televised to nine or more sections of Growth and Development. Otherwise it would not be possible to have a pediatrician come to all these classes.

QUESTIONNAIRE*

HEALTH AND HYGIENE

Instructors' Comments
Studio Presentations

Instructors Reporting: 5 Number of Questionnaires: 7

Comments of Instructors from questionnaires

1. Before you tried, what was your attitude to TV teaching?

Strongly negative 0 : Mildly negative 3 : Indifferent 1 :
Interested 2 : Eager to try 1 : Other 0 :

2. Do you enjoy teaching TV?

Yes 2 : No 1 : Yes & No 1 : (a successful program is most enjoyable) Other: (Haven't done so as yet) ? 2 :

3. If yes to #2, check one:

0 more than classroom 1 as much as classroom
2 less than classroom 3 No answer 3 (b) Question its value

4. Do you think TV teaching has helped you improve as a teacher?

Yes 3 : No 2 : No answer 2 :

*Modified version of Questionnaire used by I.B.M., CCTV Project in Technical Training, Poughkeepsie, New York

4. (a) If yes to #4, in what way?

It has widened my scope
Experience with new medium; more preparation involves learning experiences
Experience with a new medium

4. (b) It doesn't offer much of a learning situation for the teacher

No answer 3 : Not a good cross-sectional sample

5. Do you believe TV learning has advantages for the student?

Yes 6 : No 1 :

5. (a) If yes to #5, what are they?

Some students learn more readily via this medium, particularly if the program is a demonstration one
Many sections may listen to a professional speaker where time is limited, i.e., Dr. & Dentist
Variety of approach, longer retention of certain presentations
Greater variety of approach possible
Bringing large groups together to view things which would not be seen otherwise

5. (b) If no to #5, why not?

Can't replace demonstration schools

No answer 1 :

6. What is, to you, the biggest difference between TV and classroom teaching in: (a) preparation (b) performances

Television is flatter than actual teaching; personality of the teacher, interaction with students, etc.
Time necessary — lack of contact
Time necessary — lack of contact with students

No answer 4 :

7. Given the choice now, would you like to continue doing some TV teaching or not?

Yes 0 : No 2 : Other 0 : No answer 5 :

7. (a) Why?

Not enough time for preparation
Not enough time given for preparation

No answer 5 :

8. What do you like most about TV teaching?

Experience with the new medium
Experience with the new medium is stimulating

No answer 5 :

9. What do you dislike most about TV teaching?

Not enough time for preparation
Lack of time for preparation
What is happening at the other end

No answer 4 :

10. How would you rate the help you have received from the TV people?

Excellent 2 : Good ___ : Inadequate ___ : Fair ___ :
Misdirected ___ : Confusing ___ : A hindrance ___ : No answer 4 :

11. In what way? Can you amplify #10?

No answer 4 :

Cooperation, props, understanding, sympathetic
Respect for professional competence
Lack of student trainees to handle equipment properly

12. Add any comments you wish:

No comments 7 :

Results of Student Evaluations

The written comments by the students in Health and Hygiene 101 are reported below. The other two courses were not evaluated by the students except by class discussion. All student comments listed relate to the Child Growth and Development presentations.

Student Comments

I believe that a lecturer who is limited in time would be fine to view by several classes. I also think that close-ups of children, particularly of pre-school age, are excellent and superior on TV. These, I believe, are the distinct advantages.

I felt that for such things as Dr. Biakanja's demonstration, the TV observation was excellent, affording a chance for close-ups and the like. However, I felt that on such things as the lecture it was inferior as the lecturer had no way of "feeling" his audience and so on. It was my impression that one could not get a true idea of mood changes, effects of motivation and so on in the classroom observations, because the children were all too aware of the cameras.

The one I thought most successful was that with Dr. Biakanja. We actually saw a 6-month old infant in action better than if we had observed it personally. The bone growth lecture was extremely poor as compared to the one on dental care.

Discussion of the Results

With the introduction to Health and Hygiene of direct teaching by television several new teaching techniques have evolved. For instance, the method of bringing five children of differing age levels to the studio, putting a blanket on the floor, providing toys, and permitting 126 students to watch their movements and activity levels, and to see closely the behavior and expressions on the face of a six month old infant, was a rich, stimulating experience, especially so when viewers were guided by an expert, the pediatrician.

The ability of 30 students to observe at the same time while a pathologist dissects tissue, prepares it for slides, and then see the slides as they appear to the pathologist through the microscope was a new technique, not possible by conventional methods.

Many other techniques were tried; some will be improved with practice, others will be used a different way for future teaching, but regardless of the teaching method employed the instructors were more aware of careful planning, adaptation, and practicality of course content in relation to the television medium by the end of the seventh presentation. It was interesting to note that the greatest limitation in using television was the lack of time available for instructors to prepare their lesson materials. This eagerness on the part of the instructors to do the best teaching possible is a plus value for television.

The instructors in the Health and Hygiene Department started their television teaching logically by preparing presentation objectives and then attempting to fulfill them.

With experience in using the medium, time for preparation, and proper scheduling, instructional television may add a new dimension to Health and Hygiene courses.

SECTION 4

SPECIAL INSTRUCTIONAL TELEVISION PRESENTATIONS

Eight special presentations in six courses were given during the spring semester: Journalism 150 (Radio-Television News), three presentations, and Industrial Arts 60B (Occupational Therapy Crafts), Education 170 (Secondary Curriculum and Instruction), Education 124 (Audio-Visual Curriculum Materials and Techniques), Librarianship, and Industrial Relations, one presentation each. These presentations are briefly described as follows:

Journalism 150, Radio-Television News

Three student presentations were made for Journalism 150 (Radio-Television News) over the College television system to students in three sections of this course. Studio facilities, including the film/slide chain, were used. Viewing was in room Education 53 and Library 316.

The first presentation was given on May 1, the second on May 7, and the third on May 15, 1958. Two of the newscasts were fifteen minutes in length, the third was thirty minutes. All three presentations were prepared and produced by students.

The course instructor, Mr. Gordon Greb, wrote the following evaluation summary for the three presentations:

INSTRUCTOR EVALUATION

During spring semester, 1958, for the first time, a journalism course in radio and television news (Journalism 150) was given facilities and staff assistance to produce live television programs for transmission over a closed circuit network at San Jose State College. The class produced three 15-minute programs: May 1, 8, and 15.

This is an evaluation of the use of the equipment and personnel made available to Journalism 150 by its instructor, Assistant Professor Gordon B. Greb.

Advantages

1. Until the Television Center offered these facilities, the course had to restrict itself to instruction about news writing for the medium to the script stage, without an opportunity to produce the program for broadcast or transmission to audiences anywhere.

   (a) This semester, thanks to the availability of the closed circuit television facilities, students were able to reorient their scripts so that they were aimed at a specific audience, not merely to an instructor, and the realism of this kind of situation motivated the writers to work much harder in their efforts to achieve the professional type of production.

2. The instructor believes that the quality of writing by the class this semester showed a definite improvement over the previous semester, largely because students knew their work would be produced for television audiences under real conditions of the medium.

3. The students gained a new appreciation of the advice given in class lectures — the do's and don'ts of television producti — after experiencing the whole process of preparing news, from the gathering, through editing and scripting, to the actual closed circuit television transmission. For example: students who were assigned newscasting duties discovered they had to alter the word choices and phrasing of their scripts for easier readability, striking out awkward uses of the English language which the instructor may have lectured on but which had not impressed them at the time. Thanks to the experience of trying to read the script in rehearsals, they learned there was much value in what the textbook, assigned reading and instructor had to say about "writing for the tongue and the ear."

(a) This semester, for the first time, students in the class had to handle and understand "visuals," including everything from slide cards, set props, stills to 16mm motion picture film. They not only had to understand how to prepare scripts calling for those elements but in many cases had to prepare the materials themselves. Example: Dr. Jerrold Kemp, of the Audio-Visual Service Center, served as adviser on motion picture techniques, giving three lectures on the subject and consulting with the newsreel students whenever they had problems.

(b) This semester the students were responsible for all phases of the production, except technical camera work and engineering. Those students best suited (by reason of previous experience or training) were assigned to such jobs as that of director, editor, newscaster, and film cameraman. Although the class primarily was aimed at writing instruction, giving students experience in these other positions helped provide them with an appreciation of the coordination necessary among many people in order to produce a successful news program.

(c) The scheduling of a specific day and time for transmitting their program gave each student a situation where his news had to be timely. Because of this need, the class for the first time had to obtain news wire facilities and by approval of the journalism and advertising department head, funds were made available to insert carbon rolls in the United Press machine in the Spartan Daily office so that the radio-television students would have a full day's supply of news with which to work.

(d) Audiences for two of the three shows consisted of students enrolled in Journalism 101 (News Events), taught by Mr. Ralph Westerman. The nature of the programs prepared by the writing class provided an excellent sight and sound

supplement to the lectures on current events by Mr. Westerman. The other closed circuit television production was seen as a demonstration project by members and guests of Sigma Delta Chi, professional journalistic fraternity, during a visit from its national executive director one evening.

4. Until the Television Center made transmission equipment and technical staff available to Journalism 150, there were no logical reasons for budgeting special work space and tools for the radio-television students to use, because no opportunity to aim at actual production existed.

(a) The possibility of aiming work at closed circuit television viewing by audiences enabled the department to justify additional practical facilities within the journalism building itself, including:

(1) Carbon rolls for the United Press news machines, as mentioned above, so that radio-television students could have access to the latest world news and could rewrite it for programs.

(2) The creation of a radio-television newsroom in journalism building where all work could be centralized and eventually serve as a television sending and receiving studio.

(3) The budgeting of moneys for film, so that students could get experience in operating 16mm motion picture cameras and editing the results for programs.

(4) The reserving of space in the journalism library for collections of television scripts, donated by professional news editors in New York, San Francisco, and Los Angeles, as well as to file the scripts produced by Journalism 150 from one semester to the next.

(5) The building of a first-class library of books on radio-television news production in anticipation of expanded interest in this area now that the class finally could produce programs for viewing over a closed circuit television network.

Disadvantages

1. All of the problems encountered in producing these news programs over closed circuit television seem to be related to the fact that we still are in the beginning stages of work in this area and it is naturally to be expected that these problems will be solved:

(a) Despite the fact some money was made available for the purchase of 16mm film for the programs, this actually was the only outlay possible this semester. Total expense:

3 rolls of 100-foot 16mm Tri-X film, $27, including processing. Actually, this limited the amount of training which could be given in this important area and it is hoped that budget requests for the future asking for increased moneys for film will be approved.

(b) The preparation of some of the visuals was difficult because of no budget for these items and no work center in which to prepare them in the journalism building. It is possible that in the future we may need to ask that "art work" or "construction work" be assigned to technicians rather than students of the class. It cannot be expected, for example, that students of writing will also be expert artists and sign painters.

(c) There was a need for stage setting props which was hard to meet this semester and was solved only by borrowing equipment from the Speech and Drama Department. It is hoped that arrangements for purchasing and storing certain props peculiar to news sets may be made in the future. Examples: weather boards or maps; world globe; news desk with a tilted top; etc.

(d) There seemed to be a certain tightness in the work space of TB-34 so that cameras 1 and 2 could not dolly up and back with complete freedom. The existence of floor to ceiling columns in the room hindered the freedom of movement in certain instances.

(e) The production, for news purposes, could have been improved had there been a "balop" available for rear-screen projection. (However, we were very thankful to have had the film chain available to insert clips of news events and wish to stress the excellence of the equipment that was installed and available to us.)

(f) There seemed to be a need for duplication of certain key engineering equipment so that in rehearsals the same conditions could be tried that would be tried in actual transmission. That is, if production elsewhere required a key facility, rehearsals had to be conducted without it.

Conclusion

The Department of Journalism and Advertising enthusiastically endorses the closed circuit television program now under way at San Jose State College, especially as it is managed by the Television Center of the Audio-Visual Division. We feel that the excellent staff of this center and the equipment made available to us this semester made radio-television news training the best it has ever been in journalism at this college.

Industrial Arts, Occupational Therapy 60B (Occupational Therapy Crafts

Dr. Wayne E. Champion, instructor for Occupational Therapy 60B, utilized the television medium to instruct seventeen

students in the art of chip carving, and his associate, Mr. Louie Mello, instructed the same students in the intricate manipulative skill of fly tying. The students wrote voluntary statements concerning their reaction to the television demonstration technique. A sampling of the student comments follows:

EVALUATION OF TELEVISION INSTRUCTION

STUDENT 1

Advantages:
1) A new, appealing medium.
2) A successful way of showing a large group of items and/or crafts.
3) In fly tying the use of the vise kept the hands out of the way of viewing (this was much harder in wood-carving since you have to work on top of the material).
4) The fly tying instruction was given at a good rate for following.

Limitations:
1) Characteristic black and white television makes it hard to know proper colors needed in fly tying. (May be solved by advance selection of materials or more exact discription of the colors.)
2) Not only color clarification necessary, but also size and shape of feathers used should be more clearly stated, I felt.
3) Several times when I couldn't see some detail in the fly I had to rely on the verbal explanation, which is not always adequate.
4) Couldn't ask questions nor understand all of the fly tying terminology. (More complete definitions.)

General Remarks: I felt the fly tying demonstration was the more successful in teaching a new skill. Showing more simple wood-burning and wood-carving objects would have, I think, been more interesting for me.

STUDENT 2

Advantages: The demonstration was worth while in showing the usefulness of television in a therapy situation. It seems to be a good tool to relieve the waiting for help when patients are in a group larger than is practically possible for individual attention.

Limitations: I think the demonstration by Mr. Mello was more successful in that a changing of lenses frequently was not needed. The chip carving was less successful due to an inability to see clearly.

General Remarks: In a group of patients, this aid could be used to give a complete picture of the project to be attempted. In a group, there would be those who would grasp the complete procedure more quickly

than others, but all would get a start at least. Then the therapist could give her individual attention to those requiring her help.

Recommendations: Perhaps the lighting could have been adjusted better, or the process photographed at a different angle.

STUDENT 3

Advantages: Television has its place in an occupational therapy setup. As Dr. Champion suggested, television could be used for mass demonstrations. In the fly tying demonstration great detail could be seen, surprising enough to me. In general, the demonstration was successful and worthwhile.

Limitations: Color television would add much to the value of any demonstration. The smaller screen seemed to show better contrast between light and dark than did the larger one.

General Remarks: Probably viewing a demonstration such as fly tying would help a great deal. Friday, we saw only the one view as the fly was being made. In looking at the actual fly after class I found I had a somewhat different "picture" in my mind compared to what the fly actually looked like.

Recommendations: Also, if objects in a demonstration could be shown with comparison to a ruler or other measuring scale, this would be helpful in forming an idea of what the objects were like.

STUDENT 4

Advantages: I thought the experiment we did with television was extremely valuable. It was a good way to demonstrate intricate things to a group; it aroused much more interest than an ordinary demonstration. It focused the attention of everyone on the same thing at the same time.

A large group watching fly tying ordinarily would have a terrible time following every little detail. This way even the people in the back would see very well and hear well.

Finally, a demonstration can't be conducted without the attention of everyone on the detail being described. This is done to the very smallest detail on television because the rest just isn't seen.

Limitations: The one thing that seems to be at fault is the person trying to watch television and follow at the same time.

General Remarks: I found that I was so interested in the activity just by the fact that it was presented dramatically on television. It seemed like a special thing that people enjoy doing rather than a tedious chore.

Recommendations: I think the demonstration should be made on television just as any demonstr tion before the activity; then the activity should follow.

Education 170, Secondary Curriculum and Instruction

The Education 170 class of Dr. Lawrence Pugno offered a different type of teaching technique by television. Seventeen students in Education 170, meeting in the Library, Room 315, observed and, later, spoke directly to a panel of public school principals and teachers at Roosevelt Junior High School who were discussing problems of discipline and counseling, and guidance programs for secondary school children.

At the end of the discussion a rating scale was given to the students in Education 170, with a request that they write their comments, reactions, and recommendations concerning this type of television teaching. The following summary of the evaluations gives the results of the rating scale, and a sampling of the student remarks:

Results of the Rating Scale N-17

	POSITIVE	SAME	NEGATIVE
1. The picture was (adequate; not adequate)	94%		6%
2. The entire presentation was (easier to observe by TV; parts were easier; same as; traditional better)	60%	27%	13%
3. The procedure (held my interest better; same as; less)	47%	41%	12%
4. This procedure made contributions (better; same; less)	29%	65%	6%

Summary of Some of the Students' Remarks

1. I liked the TV presentation mainly because I felt that I was a part of it. In the ordinary TV program I would have been one of the audience; but the two-way communication made it seem closer to me. I paid more attention to the TV than I might have with a traditional method.

2. I feel I have profited in this experience. I learned something of the nature of the conference techniques. I also learned something of the attitude of some teachers as to who should handle the disciplining of the children--the teacher or the administrative personnel. I had always felt, perhaps, teachers would welcome a large hand in taking care of their discipline problems. I appreciate the teacher's reply concering "self-respect" in handling her own problems in the classroom.

3. . . . That experienced teachers also have discipline problems. I never thought of a counseling program being set up this way.

4. The topic was very interesting and gave me a look into some of the problems that the schools have in the way of discipline. The teacher's part is most vital and especially the point that one of the gentlemen made . . . that the teacher must maintain control of himself before control of the classroom will take place.

5. My high school utilized the methods discussed by the panel and I'm surprised they are still in force, especially detention. My school used it on me and it didn't alter my behavior a bit.

6. How a school <u>really</u> operates a C and G program. Also that some students can be helped through classrooms but that others will need <u>definite</u> help from a counselor.

7. There were no new insights. The problems discussed are common school problems.

8. As for additional understanding and insights received, the main one was the realizing of responsibility a teacher has in the classroom as to discipline problems. She is the one mainly responsible to see if the guidance program is a success or not. Another insight was the legal aspect connected with teaching that was barely mentioned. This was new and interesting to this observer.

9. The discussion of classroom discipline brought out and cleared up a stigma which I have been worried about. The way the teacher takes care of the discipline problems that arise was most helpful to understanding this type of situation.

10. I learned through the experience of people in the field. I now know more of what to expect when teaching. I realize that each will be different from the next and with different problems.

11. Teaching is no picnic because the teacher must spend many hours working on individual problems and cannot have enough time left to enrich her own experiences.

12. The learning was that of the <u>practice</u> of guidance in the classroom and to confirm the fact that some parents do defend and cover up for their childrens' mistakes.

13. I gained an insight on discipline problems that I feel I needed. It is nice to hear that experienced teachers find a need for thinking about discipline. The guidance program at Roosevelt seems very good and I feel more TV broadcasts of this nature could help enlighten us on more good administrative and teaching and guidance methods.

14. I learned about the guidance and parent-conferencing system carried on in San Jose schools through my observation period in Education 170. But the TV presentation helped to clarify it for me and to strengthen my understanding of it. I feel that the parent-conferencing plan is a good one, perhaps not the best; but I wish I had had something like it in my high school days.

15. I think this helps one to become familiar with the type of counseling procedures that are within schools more effectively than classroom discussion alone would. I hope we, as a class, summarize the information (especially as to the school setup and possible variations).

16. I felt this presentation was valuable in the sense our class could listen to people that work in the areas we intend to teach. It was strictly realistic. On the whole I believe this media can be valuable to future teachers and people learning and trying to understand the "learner."

17. I liked the organization. I believe it was better than it would have been if presented traditionally. I was a little distracted by the novelty of the program but this would be removed with more use.

18. Every point in the organizing of the material was well-amplified and covered extremely well by Mr. Bursch and colleagues. Very good program.

Librarianship

On January 6, 1958, a student in Librarianship offered a presentation to members of her class and other interested persons on "Using the Card Catalog." The presentation was successful, and presentations on this and other related subjects in Librarianship are currently being developed for 1958-1959.

Institute of Industrial Relations

On April 23, 1958, the Institute of Industrial Relations presented a televised presentation for a Management Conference meeting at the College. The Conference was attended by faculty, students, members and representatives of industry, business, and labor. The television system was used to present a panel discussion on "Human Relations Involving Specific Job Problems." The panel participants were: Lawrence Gibson, Manager of Industrial Relations, Westinghouse Electric Corporation; Richard G. Landis, District Superintendent, Canneries, California Division, California Packing Corporation; Edward W. Minium and John M. MacRae, Associate Professors of Psychology, San Jose State College. A brief, illustrated presentation on "The Use of Television in Industry" by Richard B. Lewis of the College Faculty was part of the program. Presentations were initiated in the Instructional Television Studio, and the audience was distributed among five classrooms in Centennial Hall. Questions, during the panel discussion, were asked through the inter-communication facility. No evaluative devices were used following the program, but general approval of the techniques used and the effectiveness of the system was expressed.

Audio-Visual Education

In an evening class on May 27, 1958, in Education 124 (Audio-Visual Curriculum Materials and Techniques), composed primarily of experienced teachers, a group of four students prepared and presented a series of demonstrations and discussions over the television facilities. Basing their purpose on a recent publication of the California Council on Teacher Education (8) they reviewed the status of educational and instructional television in the United States, and demonstrated techniques of direct teaching. The class viewed the presentation in Room CH 123, and, later, visited the studio for a follow-up discussion. No formal evaluations of the presentations were attempted; the concensus of the class wat that the objectives of the presentation were achieved.

CHAPTER IV

PLANS FOR 1958-1959

The Instructional Television Project at San Jose State College was initiated as a developmental study of the operational and educational feasibility of utilizing closed circuit television in college instruction. The first step in the planned progression of the project involved organization of the program, purchase and installation of equipment, and orientation of college, public school, and technical personnel to the medium of television.

Plans for the immediate future are based on experience gained during the past year. Some changes will be made in scheduling in Teacher Education and Psychology. No significant changes will be made in scheduling for Health and Hygiene, Engineering, or Journalism. Some exploration in the field of Science will be initiated, and several Teacher Education and Psychology courses will be added to the program schedule.

The major areas for future concentration in the instructional program are:

1. Reorganization of the Evaluation Committee to involve two committees: (1) A Committee of Departmental Coordinators, and (2) A Committee on Evaluation.

2. More precise programming and scheduling of observation.

3. Development of a more cohesive program of planning and orientation for all participants.

4. Development of more exact measuring instruments.

5. Continued efforts to improve effectiveness of instructor utilization of television in both observation and direct teaching.

6. Development of methods to reduce teacher preparation time, production time, and technical time.

The major concentration in technical areas are:

1. Continued efforts to eliminate the audio problems by experimenting with different types of audio equipment, and developing new skills in microphone placement, and operation.

2. Continued experimentation with lighting, camera placement, and camera operation in an effort to eliminate distortion, and to depict sharp details on close-up shots for the various television programs.

3. Exploration of methods to economize on technical time and on equipment utilization. This plan has already been put into operation by redesigning the mobile unit

to allow a one-man operation, and by plans to use the mobile unit for the Engineering demonstration-lectures when possible to eliminate moving studio equipment, and reducing set-up and striking time.

4. Experimenting with various types of materials for acoustical control in activity areas in the elementary schools.

5. Continued efforts to improve technical, equipment, and production forms for more efficient records, and accumulation of cost analysis data will be made.

Evaluation Committee 1958-59

After a review of nine months of operation of the Instructional Television Project, the Committee concluded that reorganization would permit a more cohesive operation. The reorganization plan involves two committees with specific but related functions, instead of one committee. The two committees will be: (1) A Committee of Departmental Project Coordinators, and (2) A Committee on Project Evaluation.

The Departmental Project Coordinators' Committee will have representatives from the Departments of:

Teacher Education
Elementary
Secondary
Journalism
Audio-Visual Technical Services
Engineering
Health and Hygiene
Natural Science
Psychology
Others:
When other Departments begin using Instructional TV, representatives from those departments will be added:

This Committee will be concerned with:

A. Projects to be undertaken

B. Schedules

C. Objectives, defined in relation to the television medium

D. Application of evaluation devices

The Evaluation Committee, a small group, will be composed of individuals to be named from the Psychology and Education Departments, who will design and guide the developmental studies. Representatives of departments, or individuals involved in courses utilizing ITV, will become temporary members of this committee in order to assist the Evaluation

Committee in designing studies to fit the needs of the department or courses under consideration.

The Evaluation Committee will be responsible for selecting and defining specific areas of investigation, for selecting and constructing testing devices, for assisting with the collection and processing of data, and for coordinating all research and exploratory phases of the developmental study.

The two committees will be served by a joint chairman, the Head, Division of Audio-Visual Services, and a Secretary, the Supervisor of Closed Circuit Television Projects.

Results expected from the reorganization are:

1. The two committees can operate independently in relation to specific responsibilities, and at the same time work in close cooperation with mutual problems.

2. Faculty time will be saved because committee meetings will involve only those members directly concerned with the problems in their area of responsibility.

3. The chairman and secretary will provide a line of communication between the two committees.

All project personnel have recognized the preliminary characteristics of the work done thus far, and have also recognized the fact that the first study report reveals many specific problems that need solution. Therefore, the year 1958-59 should produce more definitive conclusions and recommendations than did the first brief period of operation.

B I B L I O G R A P H Y

1. Beatts, Patrick M., I.B.M. - REPORT ON INSTRUCTIONAL CLOSED CIRCUIT TELEVISION FOR 1957. Poughkeepsie, New York. I.B.M. 1958. 72 pp. Illus.

2. Carpenter, C. R., and L. P. Greenhill, INSTRUCTIONAL TELEVISION RESEARCH, Report Number Two, AN INVESTIGATION OF CLOSED-CIRCUIT TELEVISION FOR TEACHING UNIVERSITY COURSES. University Park, Pennsylvania. The Pennsylvania State University. Spring 1958. 110 pp. Illus.

3. Clemens, Thomas D., A COMPARISON OF THE RELATIVE EFFECTIVENESS OF DIRECT OBSERVATION AND CLOSED CIRCUIT TELEVISION OBSERVATION IN TEACHER EDUCATION. San Jose, California. Audio-Visual Service Center, San Jose State College. September 30, 1956. 58 pp.

4. Committee on Television and Teacher Education of the California Council on Teacher Education, TELEVISION IN TEACHER EDUCATION (Pictorial Survey of Current Developments in Educational Television in Relation to Teacher Education in Northern California). San Jose State College. (Prepared for the Committee by Richard B. Lewis and Fred F. Harcleroad.) April 6, 1956. 19 pp. Illus.

5. Martin, Gaither Lee, INSTRUCTIONAL TELEVISION: BACKGROUND AND POTENTIAL AT SAN JOSE STATE COLLEGE. San Jose, California. Audio-Visual Service Center. 1956. 49 pp.

6. MINUTES OF THE COMMITTEE, Committee on Closed Circuit Television in the State Colleges. (Meetings - 1955: March 18, May 6, October 7, December 9; 1956: March 23-24; October 5, December 10, 11, 12.) California State Department of Education, Division of State Colleges and Teacher Education.

7. MINUTES OF THE COMMITTEE, Committee on Instructional Television in the State Colleges. (Meeting - 1957: May 24, July 18, 19, October 3, 4.) California State Department of Education, Division of State Colleges and Teacher Education.

8. PROPOSED GUIDELINES FOR TEACHER EDUCATION INSTITUTIONS IN THE USE OF TELEVISION, Report of the Committee on Television and Teacher Education. Sacramento, California. The Bureau of Audio-Visual Education. November, 1957.

9. REPORT OF THE COMMITTEE ON CLOSED CIRCUIT TELEVISION (in California State Colleges). Sacramento State Department of Education, Division of State Colleges and Teacher Education. January 1957. 48 pp.

10. Tucker, Hyman, Richard B. Lewis, Gaither Lee Martin, and Charles H. R. Over, TELEVISION THERAPY. A.M.A. Archives of Neurology and Psychiatry "Television Therapy." Vol. 77 (January 1957), pp. 57-59.

APPENDIX A

(From report of the Committee on Closed Circuit Television in the State Colleges--January 1957.)

Early in its consideration of the problem of Closed Circuit Television as a teaching aid, the committee developed six hypotheses as a basis for further deliberation and possible experimentation. These hypotheses are:

1. Closed Circuit Television may enable a classroom teacher to demonstrate methods, techniques or other learning situations which would be impossible without this medium.

2. Closed Circuit Television may save time for both the instructor and his students.

3. Closed Circuit Television may save in the use of personnel.

4. Closed Circuit Television may enable the development of more and better demonstrations having immediate applicability to the particular classroom situation.

5. The absence of visitors in an elementary or secondary school classroom under observation may create a more natural situation for observation (by using closed circuit television) and better conditions among the subjects observed.

6. Closed Circuit Television may make possible better personal contact between instructor and student than do other audio-visual aids, allowing interpretation of material as questions arise and better selectivity of the camera in focusing on the specific object to be observed.....

The committee believes that at least four of its six hypotheses have been proved. These are:

Hypothesis 1. Closed Circuit Television may enable a classroom teacher to demonstrate methods, techniques or other learning situations which would be impossible without this medium. The

committee believes that this hypothesis has been proved in the San Jose experiments and in many experiments outside of the State which are cited in Chapter III of this report.

Hypothesis 4. Closed Circuit Television may enable the development of demonstrations having immediate applicability to the particular classroom situation.

The committee regards this statement as proved, especially by the experiments at San Jose and Fresno and those reported in the literature.

Hypothesis 5. The absence of visitors in an elementary or secondary school classroom under observation may create a more natural situation for observation (by using closed circuit television) and better conditions among the subjects observed.

Experience in the San Jose and San Francisco experiments demonstrated that this has proved true in these instances.

Hypothesis 6. Closed Circuit Television may make possible better personal contact between instructor and student than do other audio-visual aids, allowing interpretation of material as questions arise and better selectivity of the camera in focusing on the specific object to be observed.

This is regarded by the committee as proved. There is also a greater sense of intimacy between instructor, demonstration and student. A better close-up of the face, facial muscles and gestures is obtained.

The committee feels that the other two hypotheses have not been proved. These are:

Hypothesis 2. Closed Circuit Television may save time for both the instructor and his students.

The committee does not regard this statement as proved at

present.

It feels that there are promising prospects when wider use of closed circuit television is achieved. The larger number of people who can be served is a most hopeful indication.

Hypothesis 3. Closed Circuit Television may save in the use of personnel. The committee does not regard this statement as proved at present although it may ultimately be found to be true.

APPENDIX B

Committee on Instructional Television
in California State Colleges
July 18-19, 1957

FRAMEWORK OF AREAS OF AGREEMENT AND CONCERN
(Supplement to the Minutes of the Committee Meeting)

Introduction:

In the exploration of such a new and potentially valuable tool as educational television, it is necessary to keep our eyes on the horizons of creative imagination, but our feet in the furrow of fact. The rapidity of development in the medium forces us to weigh our decisions between standards of what may be tomorrow, and what can be regarded as fact today. Keeping abreast of progress, therefore, involves making plans based upon educated expectations, which only sometime later become fixed and established facts. The existence of such a dilimma, continously confronting the committee, explains the discrepancy of dealing at the same time with assumptions regarded as promising enough for further follow-up, and facts regarded as already proved beyond doubt.

Background:

Early in its consideration of television as an instructional aid, the Closed Circuit Television Committee developed six hypotheses as a basis for further deliberation and experimentation. Four of these hypotheses, regarded by the Committee as proved as a result of its investigations, were:

1. Closed circuit television may enable a classroom teacher to demonstrate methods, techniques, or other learning situations which would be impossible otherwise;

2. Closed circuit television may enable the development of more and better demonstrations having immediate applicability to the particular classroom situation;

3. Closed circuit television may create a more natural situation for observation, and better conditions among the subjects observed by permitting the physical absence of visitors in a school classroom under observation;

4. Closed circuit television may make better personal contact between instructor and student than do other audio-visual aids, allowing interpretation of material as questions arise and better selectivity of the camera in focusing on the specific object to be observed.

In view of the findings of the Committee, the State Department of Education felt the desirability of equipping state colleges with closed circuit television equipment for further investigation. It was considered that the object of continuing study by the reconstituted committee (now known as the Committee on Instructional Television) was experimentation and demonstration of additional aspects of the feasibility and use of the television for instructional purposes. As a result, the task of the present committee has been changed to include finding out how, by whom, when,

where, and under what conditions the medium of television can be applied to improve instruction and to alleviate certain pressing problems now confronting the instructional program in state colleges.

The State Department of Education, in granting the two pilot projects to San Diego State College and San Jose State College, regarded the research findings as sufficiently positive to warrant the budgeting of funds for the operation of experimental instructional programs at these colleges. Implicit in this delegation is a framework of certain basic areas of agreement, their nature being dictated by general restrictions and ground rules covering the grants to the two colleges, and by the kind of justification which will be needed to secure similar equipment for the remaining colleges. While these assumptions cannot be regarded by this Committee at this time as proved beyond doubt, their plausibility suggests that they serve as temporary guide lines for future development and experimentation in this rapidly expanding medium. These basic areas of agreement are as follows:

Areas of Agreement:

1. In recognizing the rapidly growing body of evidence for the feasibility and effectiveness of instructional television, it is felt that the ultimate value of this medium can only be appraised in terms of specific conditions and applications at the local level. The study of closed circuit television in our colleges is experimental, only in the sense of finding ways and developing procedures for making it operationally and economically useful.

2. The problem of showing savings resulting from the use of closed circuit television is less crucial than that of demonstrating that television can be used operationally (as opposed to experimentally) in the state college instructional program. Comparative studies of unit costs under television and regular classroom instruction are difficult to perform, since the proper use of television requires flexibility in procedures in order to make maximum use of its potentiality. On the other hand, the development of procedures for closed circuit television should demonstrate economies in staff and student time, and in building facilities from the long range point of view.

3. Closed circuit television is to be viewed as an aid to instruction, with good potentiality for use in particular classroom situations, and under specified conditions, rather than as an eventual replacement for the instructor. The need for orienting the faculty to this point of view is recognized in procedure proposals.

4. The use of television equipment in a college may contribute to the solution of other problems incapable of being weighed or measured by this committee. For example, the value of television equipment as contributing to local demands for an occupational training program, or in allowing for an increase in student availability of certain critically short scientific personnel may fall in this category.

5. The possible dislocation of the laboratory school program resulting from the installation of closed circuit television should be studied as a separate problem. The various and perhaps unique functions of the laboratory school need to be specified, before an adequate evaluation of its overall contributions can be made. The use of television for certain functions performed by the laboratory school is only one facet of the problem. While

this facet can be studied by the Committee, analysis of other important functions of the laboratory school are clearly outside its scope.

Areas of concern:

The present committee recognizes, in its expanded charge, the need to test other hypotheses, as well as to investigate further the unproven hypotheses of the original committee. These have been incorporated into the following areas of concern. In specifying these areas and in attempting to clarify them by subordinate questions, it is not implied that the committee has the jurisdiction, facilities, time, competence, or interest to study or answer all the issues raised. The questions are intended to be heuristic, not operational.

A. Personnel: Will closed circuit television alleviate, aggravate, or not affect personnel shortages?

1. Can closed circuit television be used to extend present staff?
2. Can student assistants be used in conjunction with television?
3. To what extent can team instruction be developed?
4. How does television load compare with ordinary class load?
5. Is staff communication increased by television in multi-sectional courses?
6. What is the effect of television on the quality of faculty personnel?

B. Administrational Organization and Feasibility:

1. Organization
   a. How can television be organized and administered?
   b. By whom?
   c. How is extension television best managed?
2. Costs
   a. What is the relative cost of television?
   b. What are the breaking points for class size, where television may drop below ordinary costs?
   c. What other circumstances may justify television on a cost basis?
   d. Are there other costs justifications than just the use of television for instruction? (occupational major, etc.)
3. Time
   a. What are staff loads?
   b. Is instructor or student time saved? When?
   c. What are space requirements with and without television?
   d. Does administrative and logistic time consume television advantages?

C. Quality of Instruction:

1. Can teams of teaching experts take the place of individual instructors, without losing quality?

2. What happens to the quality of instruction when television is used?

3. Are content, sequence, and purpose of instruction altered?

4. What is the effectiveness of kinescopes in instruction?

5. Are there other uses for television, such as central film projection?

6. What are student attitudes toward instructional television?

7. What are course drop-out rates under television, compared with regular instruction?

8. Apart from course content, are there differences in attitudes or in social integration under instructional television?

9. Can the quality of instruction in a specific area be improved by an optimum combination of television and conventional methods?

10. What is this optimum percentage? and what portion of a student's total load may optimally be conducted by television?

11. Is the use of television as an experimental device in controlling presentation of materials under varying treatment of groups an important consideration in the state colleges?

In view of the position taken by the Committee on Instructional Television regarding the Teacher Education project to be conducted at San Jose State College, the following suggestions are respectfully submitted:

1. That a College Committee composed of:

Two members of the Elementary Education staff
Two members of the Secondary Education staff
Two members of the Psychology Department, (one being a statistician)
One member from the office of the Dean of the College

be appointed to develop an Experimental Design for the Teacher Education Project. This Design to clearly define the Experimental Groups, and the Control Groups; determine measuring instruments; the methods of statistical evaluations; determine the level of confidence that will be acceptable to San Jose State College.

2. It is further suggested that the Experimental Design be presented to the sub-committee responsible for summarizing variables for the State College Committee on Instructional Television for their approval comments. When the two Committees agree on the Experimental Design, the Supervisor of CCTV Projects, with the assistance of the Coordinator of Television Services, and other members of the Television staff will carry out the experimental design, gather all data, and perform other duties necessary to the success of the project.

3. Data, when collected, will be submitted to the College Committee for evaluation and analysis. <u>After</u> the College Committee has completed

its study of these data, it will then be turned over to the State Committee on Instructional Television for their evaluation and analysis. After both Committees have independently evaluated and analysed these data, if they are in agreement, a report of the findings will be made to all interested agencies. If the two Committees are not in agreement a meeting between them shall be held to determine their points of differences, and make adjustments in their finding to the satisfaction of both Committees.

4. That both the State and the College Committees will keep a close check on the project in progress.

5. If the two Committees desire periodic reports from the Supervisor of CCTV Projects that dates be given for these reports.

6. Preliminary work should be started immediately on the Experimental Design to assure a report to the State Committee on Instructional Television meeting, October 3 - 4 in San Francisco.

APPENDIX C
State Department of Education Budget Justification

EXHIBIT I

John M. Peirce
Director of Finance
State Capitol Building
Sacramento, California

January 16, 1957

Augmentation of San Jose State College Budget to Enable the Installation and use of Television at the college.

I am requesting that the 1957-58 budget of San Jose State College be augmented as follows:

CAPITAL OUTLAY - Minor Construction (Item 340)

Provide and Install Instructional Television Equipment	$ 88,248.00

SUPPORT (Item 87)

Instruction

Salaries and Wages:		
Instructional Television Coordinator	1.0	$ 4,810.00
Equipment Technician II	2.0	10,464.00
Equipment Technician I	1.0	4,740.00
Intermediate Steno-Clerk	1.0	3,456.00
Operating Expenses:		
Instructional Television		4,645.00
Total Support:		$ 28,115.00
Total Increase:		$116,363.00

In support of this request, you will find attached the following documents:

1. Statement of San Jose State College: Budget Request for Television for College Instruction, December, 1956.
   a. List of Equipment, Form SC 40 (3 copies)
   b. Form 613 for each position (2 copies)
2. Report of the State College Committee on Closed Circuit Television.
3. Statement on Scope, Criteria, Staffing, Equipment and Facilities for Television in the State Colleges.

This request for augmentation of the San Jose State College budget comes to you at such a late date because the Department of Education and the college have felt that any such request should be most carefully

documented and should fit into an over-all plan for all of the state colleges. In order to furnish the documentation and to develop the plan, numerous meetings were necessary, as well as a great deal of work between meetings. Getting all of this done while discharging normal responsibilities and handling other problems has resulted in this long delay.

The end result, however, is a request which we believe to be soundly based on facts and data, carefully collected and analyzed. Members of my staff have been in touch with members of your staff during the course of this study and they have been aware that our request was delayed so that a complete report could be presented to you and to them for review.

You will, of course, recognize the urgency of this request, since at the time of the budget hearing on November 5, 1956, we had considerable discussion of the use of television as a means of partially alleviating the teacher shortage in the colleges and perhaps of reducing budgets. While the attached reports give no definitive answers to these problems, yet we believe that enough has been shown, on a very limited scale, to justify our belief that developmental exploration of the use of television within the normal run of college operations must be supported if the answers to these problems of teacher shortage and increasing budgets are to be found.

I therefore urge that you consider this request favorable, and that you will move to put it before the Legislature for their review and action.

Original signed by

Roy E. Simpson

EXHIBIT II

John M. Peirce
Director of Finance
State Capitol Building
Sacramento, California

February 15, 1957

Supplement to Communication of Jan. 16, 1957, requesting augmentation of San Jose State College budget.

In addition to those items requested in the communication of January 16, 1957, the following request is made to augment the 1957-58 budget of San Diego State College:

CAPITAL OUTLAY - Minor Construction (Item 334)

Install Coaxial Cable to link classrooms to studio and to each other, and to provide necessary receiving sets . . . . . $ 15,000.00

SUPPORT (Item 85)

Instruction		
Salaries and Wages:		
Instructional Television Coordinator	1.0	$ 4,810.00
Equipment Technician III	1.0	5,772.00
Intermediate Steno-Clerk	1.0	3,456.00
Operating Expenses:		
Instructional Television		4,645.00
Total Support:.		$18,683.00
Total Increases:.		$33,683.00

This supplement for San Diego State College is supported by the same documents submitted in connection with the San Jose request. These items are seen as necessary in order to allow operation of the television equipment already in the capital outlay budget for San Diego State College as Item No. 334.

The request is presented as part of our exploratory development of the use of television in the state colleges. We feel that our results will be much more definitive and valid if we have two programs, operating under somewhat different circumstances, with which to carry out various applications of the use of television. More particularly, the fact that San Diego has a laboratory school and that San Jose does not, will enable us to make comparative studies on the relationship between the use of television and campus laboratory schools.

J. Burton Vasche
Associate Superintendent

cc: Dr. Robert Stone

EXHIBIT III

SAN JOSE STATE COLLEGE
San Jose, California
February 15, 1957

Dr. James B. Enochs
Specialist in State College Curricula
State Department of Education
721 Capitol Avenue
Sacramento, California

Dear Dr. Enochs:

Before presenting the proposal for expanded experimental facilities in the use of closed circuit television, we discussed it in detail with interested local departments-- particularly Dr. William G. Sweeney, Chairman, Division of Teacher Education, Dr. Lowell Keith, Head, Elementary Education Department, and Dr. G. W. Ford, Head, Secondary Education Department. This conference was held with President Wahlquist, Dr. C. Grant Burton, Executive Dean in charge of our building program, and Dr. Richard B. Lewis, Director of Audio-Visual Services.

We are in agreement that we will not request demonstration school facilities as a part of a future building program until we have completed the requested study of closed circuit television. This study will take two years and should be completed by the end of the spring semester, 1959. The evidence which we secure from the study will play a definite part in the future development of any plans for observation and demonstration facilities which are needed as a part of our teacher education program at San Jose State College.

Sincerely yours,

Fred F. Harcleroad
Dean of Instruction

FFH:ah
cc: Pres. Wahlquist
Dean Burton
Dr. Sweeney
Dr. Lewis
Dr. Keith
Dr. Ford

EXHIBIT IV

STATE OF CALIFORNIA
SACRAMENTO 14

Inter-Departmental Communication

Robert L. Harkness, Chief
Division of Budgets and Accounts
TO: Department of Finance
State Capitol
Sacramento, California

Date: February 15, 1957

Subject: Relationship between television developments and laboratory schools in the state colleges

FROM: Department of Education

In connection with our exploratory development of the use of television in the state colleges, the question has been raised as to what effect such use might have been upon the need for laboratory schools in the state c colleges.

You know, of course, that the experiment at San Jose is designed to link together six public schools in such a way that the college students may observe demonstration teaching situations by television without going off-campus. The possibility that this kind of television may prove successful has, of course, also suggested the possibility that a campus laboratory school may not be needed. Because the Division of State Colleges and Teacher Education recognizes that this question needs further study, this letter is written to tell you that the Division will not request any laboratory schools as a part of their Capital Outlay Program, while the study of the use of television is going on.

If the experimental programs at San Jose and San Diego get under way this fall, as we plan that they will, we would anticipate having by spring of 1959 the data and facts which would indicate whether we should abandon laboratory schools completely, or still continue to have campus laboratory

schools as a part of our instructional program, or modify the nature of our campus laboratory schools in relationship to the use of T-V. In other words, we accept the responsibility to study the whole laboratory school problem along with the problem of the use of television so that at the conclusion of this two-year period, we will be able to present a plan which is justified by the facts of our experimental programs.

J. Burton Vasche
Associate Superintendent

cc: Dr. Robert Stone

EXHIBIT V

February 26, 1957

Honorable James J. McBride, Chairman
Senate Finance Committee
State Capitol
Sacramento, California

Dear Senator McBride:

Subject: Amendment to Budget Bill, Items 85 and 334 (h) for San Diego State College, and 87 and 340 for San Jose State College

It is requested that Item 85 of the Budget Bill be increased $18,683, Item 334 (h) be increased $15,000, Item 87 be increased $28,115, and Item 340 be increased $88,248 to provide for the purchase, installation, and operation of television equipment at San Diego and San Jose State Colleges.

Extensive experiments in the use of television for instructional purposes have been underway across the nation in the past few years. These include three experiments in the State college system. San Jose State College has recently completed a year-long pilot study in the use of closed circuit television and Fresno and San Francisco State Colleges have been experimenting in the use of open channel commercial and educational television for instruction of college courses, the latter under a grant from the Ford Foundation. As a result, there is considerable proof that television has great potentialities as a teaching medium. These potentialities include an alleviation of the teacher shortage in the State colleges and the reduction of future budgets. It is believed that enough has been shown to justify two years of developmental exploration of the use of television within the normal run of college operations at a level significantly more than experimental.

San Jose and San Diego State Colleges have been selected to undertake this proposed exploration. San Diego State is being furnished and equipped with a facility to enable the College to offer an occupational curriculum in television recently authorized by the State Board of Education. With the addition of the amount requested above, the College will be able to use the facility for college-wide instructional purposes as well.

San Jose State College has been selected for two reasons. First, it is best prepared to make a full exploration, having just devoted a year to studying the potentialities of television. Secondly, a major

application of the television exploration will be its substitution for a campus elementary school. At present, San Jose State is one of five State colleges which do not have demonstration laboratory schools. The College has agreed that, should this request be approved, they will not require a formal laboratory school plant which normally would cost over $500,000 for construction and over $100,000 in annual operation costs. Moreover, no additional laboratory schools will be requested by the Department of Education for construction at other State colleges until completion of the exploration, at which time the need for more schools will be known. If there is no demonstratable need for these schools, the existing laboratory schools could be discontinued and converted to other college uses.

It is unfortunate that this request was not completely formulated in time for inclusion in the Governor's Budget. However, because of the nature of the request, it was decided that it should be documented as thoroughly and carefully as possible. Accordingly, a very considerable amount of supporting material has been prepared. A copy of the detailed request and of the supporting statements on policies and scope of instructional television has been transmitted to the Legislative Auditor.

The appropriate amendments to reflect your committee's action will be prepared by this office.

Very truly yours,

John M. Peirce
Director of Finance

cc: Honorable Hugh P. Donnelly
Legislative Auditor (2)

Dr. J. B. Vasche
Department of Education

APPENDIX D

ITV COST - CAPITAL OUTLAY AND OPERATING 1957-1958 - SAN JOSE STATE COLLEGE

Comparison of the equipment list in the original budget with the equipment finally purchased reveals some differences in type and amount caused by these factors:

1) Change in scope of the College assignment for ITV projects.

2) Re-evaluation of equipment needs during detailed study of available makes, models, and types (for example: substitution of additional studio camera for kine recorder system; off-campus distribution system supplied by Telephone Company on lease substituted for State-owned lines).

3) Emergencies discovered during planning and installing equipment.

However, original estimates of cost based upon preliminary studies leading to first budget preparation proved relatively accurate.

BASIC TV EQUIPMENT

Note: Because the basic TV camera systems and associated equipment were bid as a package, no reasonable breakdown of actual unit cost is possible: list prices will not apply. Thus, below, is a listing of equipment received under the bid price of $56,386.40.

Studio and Resource TV Equipment

3 Studio Camera Systems Complete

1 Synch Generator
1 Synch Switchover
4 Lenses
1 A/V Modulator
4-14" Video Monitors

1 Switcher-Fader
1 Intercom Power Supply
6 Headsets
Connecting Cables

1 Master Monitor
1 Tripod-Dolly-Head

1 Film Chain TV Camera System (including 1-16mm projector, 1-dual 2x2 projector, table, multiplexer, camera mount, remote controls)

Mobile Unit TV Equipment

3 Remote Camera Systems (2 Zoom, 1 Turret)

2 Synch Generators
1 Synch Switchover
3 Lenses
2 A/V Modulators
3 14" Video Monitors
4 Field Monitors (A Scope)
1 Switcher-Fader
1 Intercom Power Supply
6 Headsets
Connecting Cables
2 Audio-Mixers (1-2, 1-4 channel)

(Cost Continued)

ADDITIONAL EQUIPMENT PURCHASED OUTSIDE BID

Studio and Resource TV Equipment		Mobile Unit TV Equipment	
2 Tripods-Dollies-Heads	$ 1,600.68	Lights	$ 1,279.80
1 Synch Generator	1,768.00	Camera Cables	1,014.00
2 TV Tuners (Conrac)	509.60	Microphones & Cable	513.79
Lenses - 8	672.25		
Microphones	513.00		
Audio Pre-amp Mixer	147.57	Modification of Trailer - Misc.	1,293.14
Cable	218.70	Voltage Regulator	182.76
	$ 5,429.80		$ 4,282.49

TEST EQUIPMENT

Including Scopes, Meters, etc. $2,327.18

RECEIVERS

20 - Receivers - Conrac - Custom to Order for both Video and RF Reception on Closed Circuit, and Off-the-Air Reception of All VHF Channels (Note: 1 additional unit purchased with Annual A/V Div. Budget) $ 6,552.00

9 - Receivers - RCA - Domestic (4-24" - 2-21" - 3-17") $ 2,153.21

Leg kits for Conrac Receivers (Johnson Kits) $ 276.89

$ 8,982.10

DISTRIBUTION SYSTEM - ON-CAMPUS

27 Tap points: A two-way, dual cable, broadband system (Spencer-Kennedy Laboratories), with antennas and mast, patch and control panel, amplifiers, spare amplifier, parallel 3-wire audio-lines, installed. (Item includes State-purchased coaxial cable and audio cable) $ 6,261.52

DISTRIBUTION SYSTEM- -OFF-CAMPUS

Under contract with Pacific Telephone and Telegraph Company.

System provides: 2 incoming RF (audio-video) channels, from 4 public schools to the College, and 1 outgoing channel from the College to the public schools. System can be extended to other schools, and channels can be added for a total of 3 outgoing, 3 incoming (for addition charges). Open-circuit phone channel from 4 schools to each

college tap-point.

Monthly Charge for TV	$430.00	
Monthly Charge for Phone	81.85	
	$511.85	per month
February 1 to June 30, 1958 billing		$2,775.75 (Actual)
Initial installation charge: phone (non-recurring)		$ 229.50
State Installed Conduit, Street to TB 34 Control Room (non-recurring)		$ 882.00
TOTAL - FIRST YEAR		$3,657.75

Termination Fee

In accordance with the approved contract, in addition to the Monthly Charges, the State is obligated for a Termination Fee for the TV system: an amount of $17,100.00 for 10 years, this amount reduced by 1/120th for each month of use.

MISCELLANEOUS EQUIPMENT

Accessories, office equipment, etc. (See purchase records for details)		$1,410.07
and Miscellaneous Capital Outlay and Operating Items (see purchase records)		3,345.00
		$4,755.07
TOTAL AMOUNT SPENT		$91,593.00
ORIGINAL BUDGET: Cap. Out.		88,248.00
Operating		4,645.00
		$92,893.00
C.O. BALANCE JUNE 25-to 1960		$ 1,300.00 (Rounded off)

PERSONNEL COST

		Present Rate
Coordinator of ITV Projects - 12 mo position		$6,672.00
Intermediate Secretary	Year:	$3,540.00
Technician II (2) $458 to $556	Year:	$5,496.00 (ea.)
Technician I (1) $415 to $505	Year:	$4,980.00

Note: Coordinator of TV Services not charged to Project: part of A/V Services Administration, 3/4 time.

APPENDIX E

COMPLETE VIEWING SCHEDULES

COURSES TO BE EMPLOYED

Department	Course No. and Description	Students	Sections
Education	102 - Eval. of Elem. Instr.	200	5
Education	104 - Curric. & Instruction	100	10
Education	150 - The Learner	350	10
Education	170 - Secon. Sch. Curric. & Instr.	300	11
Health & Hyg.	101 - Growth & Develop.	200	12
Health & Hyg.	102 - Adoles. Health Prob.	20	1
Health & Hyg.	127 - Adv. Hygiene	40	2
Health & Hyg.	194 - Sch. Health Program	100+	5 or 6
Psychology	102 - Child Psych.	200	7
Psychology	112 - Adoles. Psych.	150	5
Psychology	150 - Educ. Psych.	245	6
Engineering	1 - Eng. Preview	150	5
Engineering	25 - Metallurgy	96	8
Journalism	(Unspecified)		
Natural Science	(Unspecified)		

Total Deparments: 6

Total Students: 2,000 plus

Total Sections: 83 plus

TEACHER EDUCATION T.V. OBSERVATION SCHEDULE

	Room 315 - Library Capacity 35							Room 316 - Library Capacity 35					
Mon.	Ed. 170	unscheduled TV observation	T.V. Obs.	Ed. 170		Ed. 170		Ed. 104	T.V. Obs.	T.V. Obs.	Ed. 104		Ed. 170
Tues.		Ed. 170	Ed. 170		T.V. Obs.	T.V. Obs.	T.V. Obs.			T.V. Obs.		Ed. 170	
Wed.	Ed. 170	H & H 194	T.V. Obs.	Ed. 170		Ed. 170		Ed. 104	T.V. Obs.	T.V. Obs.	Ed. 104		Ed. 170
Thurs.		Ed. 170	Ed. 170		T.V. Obs.	T.V. Obs.	T.V. Obs.		T.V. Obs.	T.V. Obs.		Ed. 170	
Fri.	Ed. 170	Ed. 170				Ed. 170		Ed. 104			Ed. 104		
	8:30 9:20	9:30 10:20	10:30 11:20	11:30 12:20	12:30 1:20	1:30 2:20	2:30 3:20	8:30-10:20	10:30 11:20	11:30 12:20	12:30 1:20	1:30 2:20	2:30 3:20

TEACHER EDUCATION TV OBSERVATION SCHEDULE

	Centennial Hall Room 162 Capacity 35				Centennial Hall Room 165 Capacity 49					Centennial Hall Room 166 Capacity 49					
Mon.	Ed. 150		Ed. 150		Ed. 150	Ed. 150		Ed. 104	Ed. 104				Ed. 150	Ed. 104	Ed. 104
Tues.		Ed. 150		Ed. 150		Ed. 150	Ed. 150			Ed. 104	Ed. 104	Ed. 150			
Wed.	Ed. 150		Ed. 150		Ed. 150	Ed. 150		Ed. 104	Ed. 104				Ed. 150	Ed. 104	Ed. 104
Thur.		Ed. 150		Ed. 150						Ed. 104	Ed. 104	Ed. 150			
Fri.	Ed. 150	Ed. 150				Ed. 150	Ed. 150	Ed. 104		Ed. 104			Ed. 150	Ed. 104	
	8:30 9:20	9:30 10:20	10:30 12:20	1:30 2:20	9:30 10:20	10:30 11:20	11:30 12:20	1:30 2:20	2:20 3:20	8:30 9:20	9:30 10:20	10:30 12:20	12:30 1:20	1:30 2:20	2:30 3:20

LARGE GROUP VIEWING
Education Building - Room 55
Education 104

Monday)
Tuesday) ----- 9:30 - 11:20
Wednesday)
Thursday)

PSYCHOLOGY T.V. OBSERVATION SCHEDULE

	Centennial Hall Room 231 Capacity 32					Centennial Hall Room 234 Capacity 72				EDUCATION BUILDING Room 358(49)	Room 53 Capacity 72		Room 153 40	Room 157 35
Mon.	Psy. 102			Psy. 150		Psy. 170		Psy. 102	Psy. 150		Ed. 104		Ed. 104	Ed. 104
Tues.		Psy. 102	Psy. 112		Psy. 102		Psy. 150			Psy. 112	Ed. 102			
Wed.	Psy. 102			Psy. 150		Psy. 170		Psy. 102	Psy. 150		Ed. 104		Ed. 104	Ed. 104
Thur.		Psy. 102	Psy. 112		Psy. 102		Psy. 150			Psy. 112	Ed. 102			
Fri.	Psy. 102			Psy. 150		Psy. 170		Psy. 102	Psy. 150		Ed. 104		Ed. 104	Ed. 104
	8:30 9:20	9:30 11:20	11:30 12:20	12:30 1:20	2:00 3:15	8:30 9:20	9:30 10:20	1:30 2:20	2:30 3:20	10:30 11:30	8:30 9:20	9:30 10:20	12:30 2:20	12:30 2:20

HEALTH & HYGIENE TV OBSERVATION SCHEDULE

Room 13 Capacity 40-50				Room 25 Capacity 30				Room 39 Capacity 50					
Mon.		H & H 194		H & H 194	H & H 127	H & H 194	H & H 127		H & H 194	H & H 101	H & H 101		H & H 101
Tues.	H& H 102	H & H 194		H & H 194	H & H 127	H & H 194	H & H 127	H & H 101	H & H 194		H & H 101	H & H 101	H & H 101
Wed.			H & H 194				H & H 194		H & H 101	H & H 101	H & H 101		
Thurs.	H & H 102	H & H 194		H & H 194	H & H 127	H & H 194	H & H 127	H & H 101	H & H 194		H & H 101	H & H 101	H & H 101
Fri.									H & H 101				H & H 101
	8:30 9:20	11:30 12:20	1:30 2:20	10:30 11:20	11:30 12:20	12:30 1:20	1:30- 2:20	8:30- 9:20	9:30- 10:20	10:30- 11:20	11:30 12:20	12:30 1:20	1:30 2:30

H&H 194 - School Health Program
H&H 101 - Growth & Development
H&H 127 - Advanced Hygiene
H&H 102 - Adolescent Health Problems

LARGE GROUP VIEWING

Room 55 - Education Building - Capacity 140-300 students.

Wed. - 1:30 - 2:20
Fri. - 1:30 - 3:20

APPENDIX F

CALENDAR OF MEETINGS - HORACE MANN ELEMENTARY SCHOOL

Dates	Representative of Public School	Representative of College	Purpose
January 25, 1958	Dr. Earle P. Crandall, Supt. Mr. Curtis Davis, Asst. Supt. Miss Mary Gerkovich, Principal, Horace Mann Elementary School.	Dr. R. B. Lewis Mrs. G. L. Martin ITV Staff- Miss Viola Owen Dr. Virgil Hughes Dr. J. Larkin Dr. Clay Andrews Dr. Marshall Miller	1. A discussion of mutual problems involved in the observation project. 2. Selection of teachers. 3. Selection of classrooms, and grade levels. 4. Number of hours per day, and number of weeks of observation. 5. A tentative schedule made: February 7-15 to test the system. February 15-27 for orientation of college instructors and teachers to the observation experience. March 3, to begin day-by-day telecasting.
January 30, 1958	Mr. Curtis Davis Miss Mary Gerkovich Teachers: Miss Aleen Pett, 2nd grade Mrs. Lico 6th grade Mrs. Mabel Willson, 6th grade	Mr. John Westfall Dr. Clay Andrews Dr. Marshall Miller Dr. J. Larkin Dr. Virgil Hughes	1. Discussion of teacher problems: (a) Who at the College would observe, (b) Kinds of preparation required of the teachers, (c) Physical set-up of the classrooms, (d) remuneration for the teachers.

CALENDAR OF MEETINGS - HORACE MANN ELEMENTARY SCHOOL

Dates	Representative of Public School	Representative of College	Purpose
February 13, 1958	Miss Gerkovich	Mrs. Martin	1. Discuss College observation schedules. Supplied Course objectives for all Courses involved in observation. 2. Supplied H.M. playground schedules, and other material.
February 20, 1958	Mr. Curtis Davis Miss Mary Gerkovich Teachers: Miss Pett Mrs. Lico (Mrs. Willson - absent)	Dr. R. B. Lewis Dr. Gene Wallar, Psych. Dr. John Barr, Sec. Ed. Mrs. Estes Levine, H&H Dr. Clay Andrews, El.E. Dr. Marshall Miller, El.E. Mr. John Westfall, ITV Mrs. G. L. Martin, ITV Miss Viola Owen, El.E	To discuss: 1. length of daily observation 2. rotation of viewing at the end of each day. 3. Sharing of teaching materials between teachers and instructors. 4. Legal aspects of observation. 5. Remuneration for teachers. 6. Clarification of Course objectives in Teacher Ed. 7. Arrangements for College students to assist the teachers with the preparation of materials. 8. Teachers did not want to be telecast Fri. P.M.
February 27, 1958	Miss Mary Gerkovich	Mrs. Martin	1. Make arrangements for teachers to view the trailer. 2. Arrangements to provide Horace Mann with a TV

CALENDAR OF MEETINGS - HORACE MANN ELEMENTARY SCHOOL

Dates	Representative of Public School	Representative of College	Purpose
			receiver during the second week of observation so the children could see how the program worked. 3. Arrangement for seating charts and other materials.
February 28, 1958	Mr. Curtis Davis (absent) Miss Mary Gerkovich Mrs. Willson Miss Pett Mrs. Brown	Dr. R. B. Lewis Dr. Andrews Dr. Larkin Dr. Ferris Mr. Brandow Mr. Johnston Mrs. Martin Mr. Westfall Mrs. Levine	1. Mrs. Lico was replaced as TV teacher for this semester for personal reasons and Mrs. Brown with a mixed 4th, 5th, & 6th grade class was scheduled. 2. The teachers wanted clarification from the Elementary Ed. group regarding: (a) Observation objectives (b) How they planned to organize viewing (c) Teachers were pleased with Health & Hygiene objectives, and wanted Elem. Ed. to define theirs in relation to observation. (d) Reported they would not be ready for the program to begin until March 10. 3. Elementary Ed. group arranged to use the week from March 3-10 to bring their students to the school for orientation, and for survey of school functions by

CALENDAR OF MEETINGS - HORACE MANN ELEMENTARY SCHOOL

Dates	Representative of Public School	Representative of College	Purpose
			Miss Gerkovich. Teachers continue to refuse Fri. P.M. Telecasting.
March 6, 1958	Miss Gerkovich Mrs. Willson Mrs. Brown Miss Pett	R. B. Lewis Clay Andrews G. L. Martin Viola Owen F. M. Brandow D. R. Ferris K. A. Johnston	1. College student assistants were assigned. 2. Final review of the viewing schedule was agreed upon. 3. Final effort to get some Friday P.M. viewing for H & H scheduled from 1:30-2:30 Friday--unsuccessful--some willingness to allow one playground observation on one Friday tentatively agreed. 4. Evaluation meeting scheduled for March 21, 1958.
March 10, 1958 March 21, 1958	(Daily observation started.) Numerous informal visits at the school and almost daily telephone conversations.		
March 21, 1958	Mr. Curtis Davis Miss Mary Gerkovich Miss Alsen Pett Mrs. Mabel Willson Mrs. Brown	Dr. R. B. Lewis Dr. Clay Andrews Dr. Tullye Lindsay Dr. Ferris Mr. Brandow Mr. Johnston Miss Owen Mrs. Martin	1. To evaluate the observation project for the first two weeks of operation. (See EVALUATIONS-PUBLIC SCHOOL TEACHERS)
May 14, 1958	Miss Gerkovich Miss Pett Mrs. Willson Mrs. Brown	Dr. R. B. Lewis Dr. Clay Andrews Mrs. G. L. Martin	1. To discuss plans for fall semester.

CALENDAR OF MEETINGS - HORACE MANN ELEMENTARY SCHOOL

Dates	Representative of Public School	Representative of College	Purpose
May 29, 1958	Miss Gerkovich Mrs. Willson Mrs. Brown Miss Pett	Dr. R. B. Lewis Dr. Clay Andrews Mrs. G. L. Martin **Certificates of merit were awarded to the teachers and their pupils for their splendid cooperation throughout the observation period by San Jose State College.	1. College Instructors should be prepared to submit to the teachers: (a) Specific viewing situations desired. (b) Scheduled hours and days of viewing. (c) Classroom levels desired. (d) Specific objectives relating to TV observation. (e) Schedule of isolated lessons or special events. The teachers agreed: (a) To give reading tests. (b) School Health Program (immunization, etc.) (c) Special demonstration lessons. (d) Probably some counseling.

CALENDAR OF MEETINGS - SELMA OLINDER ELEMENTARY SCHOOL

March 7, 1958	Mr. Stephen Everett	Dr. R. B. Lewis Mrs. Martin	To get orientation to the physical set-up of the school, for installation of the system.
March 18, 1958	Mr. Stephen Everett	John Westfall Ray Litke	1. To evaluate installation problems.
March 19, 1958	Mrs. Dellasandra, Princ. Mr. Stephen Everett, Princ. Miss Marsh	Dr. R. B. Lewis Dr. Clay Andrews Dr. Lindsay	1. To organize the observation program, to begin at Selma Olinder April 7.

CALENDAR OF MEETINGS - SELMA OLINDER ELEMENTARY SCHOOL

Dates	Representative of Public School	Representative of College	Purpose
March 19, 1958 (Con't.)	Mrs. Turbeville Mrs. Barnwell Mrs. Cowan Mr. Davis	Miss Owen Mrs. G. L. Martin Mr. John Westfall	2. Teachers will follow routine established at Horace Mann Elementary School. 3. Agreed to allow one Friday afternoon viewing for Health and Hygiene. 4. Schedules will be set up at a later meeting.
March 26, 1958	Mr. Stephen Everett Miss Marsh Mrs. Turbeville Mrs. Barnwell	R. B. Lewis Clay Andrews G. L. Martin K. A. Johnston F. M. Brandow John W. Westfall	1. Schedules were made. 2. Course objectives were given to the teachers. 3. Materials were ready for duplication for the students in the college observation program.
March 27 - April 7, 1958	Numerous telephone conversations and exchange of materials.		
April 7, 1958	Program started at Selma Olinder--Continued until April 18, 1958.		
May 29, 1958	Certificate of Merit was presented to the teachers and pupils taking part in the Teacher Education Project for splendid cooperation, by San Jose State College.		

CALENDAR OF MEETINGS - ROOSEVELT JUNIOR HIGH SCHOOL

January 16, 1958	Mr. Curtis Davis Mr. Roy Bursch, Princ.	Dr. R. B. Lewis	1. To discuss observation project. 2. There was some concern expressed by the public school administration that viewers might be given the impression that the four schools selected as observation locations were typical

CALENDAR OF MEETINGS - ROOSEVELT JUNIOR HIGH

Dates	Representative of Public School	Representative of College	Purpose
			of the socio-economic level of all schools in the district. Assurance was given that all persons involved in the observation project would be briefed on the limitation of the schools on the CCTV as not representative of all schools in the area.
February 27, 1958	Mr. Roy Bursch	Dr. R. B. Lewis Dr. John Barr	1. To discuss observation at the secondary level.
March 4, 1958	Mr. Roy Bursch	Dr. R. B. Lewis	1. Continuing discussion of the observation program.
March 17, 1958	Mr. Roy Bursch Mr. and Mrs. Taix Mr. Allman Mr. Hoshaw Mrs. Baziuk Mrs. Shaw	Dr. R. B. Lewis Dr. John Barr Mrs. G. L. Martin	1. The objectives of the Secondary Education Observation were discussed. 2. Selection of classes and rooms. 3. Discussion of preparation of materials for college students.

CALENDAR OF MEETINGS - ROOSEVELT JUNIOR HIGH SCHOOL

Dates	Representative of Public School	Representative of College	Purpose
March 27, 1958	Mr. Hoshaw	Dr. Barr Mrs. Martin	1. Mr. Hoshaw visited the College to arrange a field trip for his 9th grade art students to visit the ITV studio.
April 8, 1958	Mr. Bursch Mrs. Morris Mrs. Taix Mr. Hoshaw Mr. Allman	Dr. R. B. Lewis Dr. John Barr Mrs. G. L. Martin	1. Check the physical set-up and visit the rooms selected for viewing. 2. Had a short discussion with the teachers concerning schedules, seating charts, and other materials necessary for the observing students.
April 21, 1958	Started viewing at Roosevelt Junior High School		
April 24, 1958	Mr. Bursch	Dr. Pugno Mrs. Martin	1. To discuss a special presentation for Dr. Pugno's class.
April 29, 1958	Mr. Bursch	Dr. Pugno Mrs. Martin	1. Continuing discussion for special presentation for May 6.
May 5, 1958	Mr. Bursch Mr. Bartels Mrs. Maggenti Mrs. Rankin Mr. Buchser	Dr. R. B. Lewis Mr. Westfall Mrs. Martin	1. Discuss set-up for special presentation (panel discussion) May 6, at 3:30-4:30 P.M.
April 21, 1958- May 9, 1958	Numerous telephone conversations and informal visits to the College by the School personnel and to the School by the College personnel.		

CALENDAR OF MEETINGS-SAN JOSE SENIOR HIGH SCHOOL

Dates	Representative of Public School	Representative of College	Purpose
January 16, 1958	Mr. Sweeney Mr. Davis	Dr. R. B. Lewis	1. To discuss the observation program.
April 28, 1958	Mr. Sweeney Mr. Sloetzer Mr. Ogden Mr. Williams	Dr. R. B. Lewis Dr. John Barr Mrs. G. L. Martin	1. To discuss scheduling of classes. 2. To discuss materials necessary for viewing college students.
April 30, 1958	Mr. Sweeney	Dr. R. B. Lewis Mrs. G. L. Martin	1. To check over the physical plant and estimate installation needed.
May 6, 1958	Mr. Sweeney Mr. Sloetzer Mr. Ogden Mr. Williams	Dr. R. B. Lewis Dr. John Barr Mrs. G. L. Martin	1. Final discussion of schedules. 2. Collect materials to duplicate for college students. 3. Final plans.
May 12, 1958	Began Televiewing from San Jose Senior High School		
May 29, 1958	Ended observation from the public schools for Spring Semester 1958.		

Mrs. Willson
Public Schools
Grade 6
Room "E"

Chalk Board

Door

Teacher's Desk

Marilyn L.	Eliza-beth	Cheri	Carol	Pat C.	
Vincent	Elsa	Eddie		Ray-mond	William
Carlos	Ann	Billy	Winfred	Pamela	Darrell
Betty	Janis	Sharon B.	Judith	Jerry	Robin
Francis	Peter	Pat K.			
Margaret	Richard	Suzanne	Patty		
Sharon L.	Shari	Joey	Marilyn S.		

N

Windows

LESSON PLANS FOR TV

Mabel Willson
Sixth Grade

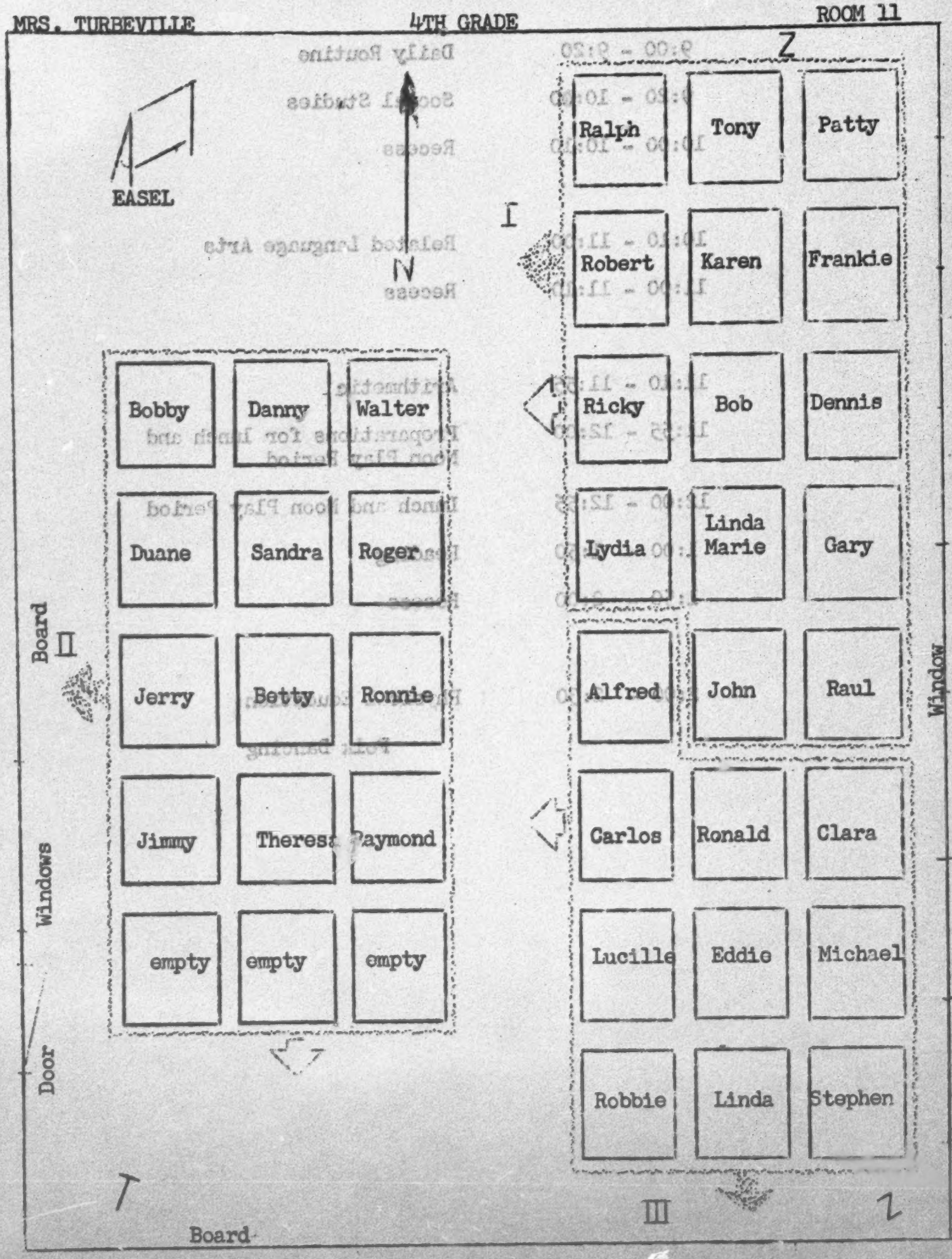
Monday, March 10

9:00 - 9:15	Service Club
9:15 - 10:00	Developmental Reading
10:00 - 10:10	Recess
10:10 - 11:00	Social Studies
11:00 - 11:10	Recess
11:10 - 12:00	Language Arts
12:00 - 1:00	Lunch
1:00 - 1:50	Arithmetic
1:50 - 2:00	Recess
2:00 - 2:30	Folk Dancing

Thursday

2:00 - 2:30	Music

Note: Solid arrow indicates normal facings. Broken arrows and lines indicate facings and identification of reading groups.



Tuesday, April 8

Selma Olinder School
Enes Turbeville
Fourth Grade

9:00 - 9:20	Daily Routine
9:20 - 10:00	Social Studies
10:00 - 10:10	Recess
10:10 - 11:00	Related Language Arts
11:00 - 11:10	Recess
11:10 - 11:55	Arithmetic
11:55 - 12:00	Preparations for lunch and Noon Play Period
12:00 - 12:55	Lunch and Noon Play Period
1:00 - 1:50	Reading
1:50 - 2:00	Recess
2:00 - 2:30	Physical Education: Folk Dancing

MR. SLOETZER — SEATING CHART — ROOM 44

(Star Athl.) Jim	*George	Vern John	Wanda	Carlton	Charles
(Leg.Coun.) *Ailsa	Tom	*Grace	Pat	Sandra	*Pat
Roberta	Don	Larry	*Gené (Past Stu.Body Pres.)	*Maureen	James
Connie	Ron	Rosalie	Pat	Pat	Alberta
Sylvia	*Irene	Richard	Beverly	Marvin	David

*Top students scholastically - not intelligently. Per. II - Sec. Sci. 8 (Senior Problems)

A-41

Mr. Sloetzer
Rm. 44

May 15	Review of Child Psychology
16	Test on Child Psychology
19	Lecture - Problems of Dating
20	Discussion groups on dating and marriage problems
21	Films - Room 30
29	Possible Study Hall - (notebooks due) Review

This is a Senior Problems Course in which vocations, income tax and labor problems, are covered. A research paper is written on a chosen vocation by each student. This constitutes the first quarter.

The second quarter covers Personality, Emotions, Defense Mechanisms, growth from infancy through adolescence, courtship and marriage, consumer buying, with one day a week devoted to current events.

Darrel	Alfred
Richard	Pete

		Joan
Sharon	Nancy	Judy W.

Student Teacher Per. III Miss Dibble

Mrs. Morris

Mary Lou	Manuel	Jim	Harry	Robin
Margaret	Jack	Tom	Francine	Don
	Cheryl W.	Diana	Phyllis	Dianne
	Cheryl G.	Judy A.	Connie	Cheryl L.

Table

Bookcase

Periods III & V

Virginia				
	Jacqueline	Mary	Stephanie	Jerry
Diane	Heather	Carole		David

Door

SEVENTH GRADE - MRS. MORRIS

English and Social Studies Students

Room 209

Period I.

We are using third and fourth grade readers and fifth and sixth grade spellers.

Period I is Social Studies for this class. We do many varied activities to keep them motivated. Learning to use resources to find information will be stressed a great deal of the time. These students love to draw and color and write simple sentences under the pictures to explain essentials.

Good work habits and good citizenship are stressed with these youngsters. They need lots of individual attention and positive praise for jobs well done.

Periods III and V.

During Period III this class will be under the direction of my fine student teacher, Miss Dibble, for English.

The students can do individual projects and assignments and prefer to work at their own speeds. Little direction is needed. ALL of the students' parents came on first notice for parent conferences.

Period V.

Period V is Social Studies for this class. I have found that even the simpliest assignment given comes back with a Table of Contents, extra pictures, articles, reference pages, etc. from these students. They do lots of individual projects to develop their ability for research.

APPENDIX H

SAN JOSE STATE COLLEGE

LETTER OF JUSTIFICATION FOR OBSERVATION PROJECT

Department of Elementary Education

The television system proposed by San Jose State College will be used by several basic courses in teacher education, but, for the purposes of this explanation, the key course in "Observation" (Education 104) may best serve to indicate our problems and the contribution of television to their solution.

One of the most important experiences we offer at San Jose State College in the training of elementary teachers is that of observation in the public schools. These observation experiences start early in the upper division program and increase as candidates approach student teaching assignments.

No demonstration school is operated by the college. Observation is entirely in the public schools in the region of the college. When our enrollment was small we could do this observation program with considerable efficiency. Rapid growth has created several problems of growing difficulty. We find ourselves in the questionable position of not being able to operate the program at the efficiency level we desire. Some of the most pressing problems facing us include:

(1) Enrollment: Our enrollment is increasing at the rate of approximately ten per cent each year. In the fall of 1952, we had 140 students in elementary school observation. By the fall of 1956, this number has increased to 241. This represents an increase of seventy-nine per cent in five years. We have strong reason to believe that the number of students needing observation experiences in elementary education will increase approximately forty per cent in the next four-year period.

(2) As enrollment increases, travel distance to suitable observation situations increases. The present schools we use for observation find themselves over-burdened in caring for the students.

(3) Because of difficulties in obtaining sufficient appropriate situations, demonstration lessons by master teachers have been almost completely dropped out of the teacher education program.

(4) Students beginning observation in the field, unguided by an experienced instructor, do not know what to observe, and what they do see is only part of what could be significant for them.

(5) Seldom do college students have opportunity to observe the progress of a single class, in a single subject area or activity, over a period of weeks.

(6) As a result of carefully controlled studies during the past year we have scientific reason to believe that our students could receive much more benefit from actual observation in the public

schools if they first had the opportunity to see certain planned situations which could be presented by television. The services of our teaching staff could be utilized to much better advantage if we could provide some of the observational experiences by closed circuit television, bringing picture and sound from the public school classrooms to college classes on the campus in San Jose.

(7) With television equipment as described in this budget proposal, one half of the observation experiences of all elementary school candidates can be by television as soon as the system is in operation.

Lowell G. Keith, Head,
Department of Elementary Education
San Jose State College

Spring 1956

APPENDIX I

SAN JOSE STATE COLLEGE

LETTER OF JUSTIFICATION FOR OBSERVATION PROJECT

Department of Secondary Education

In the secondary teacher education program at San Jose State College, it is becoming increasingly difficult to provide students with classroom observation experience in order for them to prepare for teaching. We seek to provide several levels of observation and participation as the student progresses through the program, an increasingly complex problem with an ever-increasing enrollment.

In Education 149 (454 enrolled in Fall Semester, 1956) students are expected to visit secondary schools in large groups to observe the total program of a secondary school and to learn the responsibilities of teachers, counselors, and administrators. Because nearby schools must be used for assignments in subsequent courses, this observation assignment, requiring far fewer trips, has been carried on in more distant schools - from 30 to 60 miles from the college campus. Telecasts can eliminate in considerable measure the travel problems, and in addition, can provide close-up views that are not available to all students when they must visit schools in large groups as is currently the case.

In Education 150 (193 enrolled in Fall Semester, 1956) emphasis is upon understanding pupils in public schools, with special attention given to the problems and principles of learning. In this course, students make a series of directed observations of pupils in several stages of maturity in elementary and secondary schools, as well as in youth groups. It is practical for only one or two college students to visit a public school classroom at one time for this observation.

Experiments with students in this course last year produced evidence to show the value of television for the teaching objectives being sought: fewer visits to schools will be required; fewer public school classrooms and teachers will be needed; more insight can be gained from "close-up" views, and from the direction given by the course instructor during television observation; and, public school classrooms will be materially relieved of college student "traffic" during daily instruction.

In Education 170 (enrollment 266 in Fall Semester 1956) students, who are learning to plan courses of study and daily teaching lessons, are assigned to schools as assistants to teachers for five weeks. The purpose of this assignment is to help the teacher trainees to learn teaching procedures by serving along side an experienced teacher on the job. There is need for many more demonstrations of various teaching methods before the students enter public school classrooms, but these are not possible with the number of students enrolling in Education 170; television can provide the demonstration lesson observations economically and in sufficient quantity to prepare students for actual classroom participation.

Fifteen other courses are taught in the college, with 225 presently

enrolled, in the high school teaching subject fields. Television can provide observations of their teaching specialties without having students leave the campus.

G. W. Ford, Head,
Department of Secondary Education
San Jose State College

Spring 1956

APPENDIX J

January 8, 1958

Outline of a Descriptive Survey Concerning

Closed Circuit Instructional Television

I. Title: Relationship of Selected Closed Circuit Television Experiences to the Instructional Efficiency of Various Courses at San Jose State College.

II. Statement of problem in general terms; The problem is to describe in detail the specific ways in which these facilities are used for instructional purposes, and to determine the relationship of these services to the instructional efficiency of various courses.

III. Statement of problem in terms of eventual application to the fields of education.

A. The description of the facilities can be used as a guide for installation of these facilities in other state educational institutions.

B. The description of the ways in which these facilities are used for instructional purposes can be used as a guide by other state institutions and by this institution as a basis for expanding the program to other areas of instruction.

C. If selected closed circuit television experiences are found to be related positively to the educational efficiency of various courses, these experiences can continue to be provided in these courses and expanded to others.

D. The descriptive techniques and the evaluation methods developed in this study can be used for further research in this area.

IV. Statement and development of hypotheses

A. A descriptive survey and analysis of the closed circuit television facilities at San Jose State College can be accomplished.

B. The specific ways in which these facilities are used for instructional purposes can be described.

C. The relationship of these services to the instructional efficiency of various courses can be determined.

V. Procedure:

A. General Method

1. Make a complete survey of the closed circuit facilities and describe them in detail.

2. Make a complete survey of how these facilities are used in various courses.
3. Collect an outline of the specific course objectives that are to be facilitated by the uses of closed circuit television.

4. Have each instructor in the various courses rate how effectively each of these objectives is met through closed circuit television. A five point scale will be used for this evaluation. e.g.
    1. highly superior to other methods
    2. better than other methods
    3. the same as other methods
    4. not as good as other methods
    5. highly inferior to other methods.

    Each instructor will make this evaluation before and after using the closed circuit facilities. The pre-TV evaluation will be made on the basis of how well the instructor feels the objectives of the course will be met by using closed circuit television. The post-TV evaluation will be made on the basis of how well the instructor feels the objectives were met by using closed circuit TV. Results should give changes in attitude that may occur as a result of the use of television.

5. Have each student in the various courses rate how efficiently each of these objectives is met through closed circuit television.
    A five point scale will be used for this evaluation, e.g.
    1. highly superior to other methods
    2. better than other methods
    3. the same as other methods
    4. not as good as other methods
    5. highly inferior to other methods

    A controlled study involving selected, small groups of students will explore the following areas:

    1. What are the attitudes of resident teachers on the use of this new medium?

    2. Are teacher trainees less anxious about teaching and their relationship with the children as a result of observation over television?

    3. What are the saturation points of observation over television?

    4. Is one more skilled in detecting individual differences (e.g., physical, socio-economic, emotional, and intellectual)?

APPENDIX E

INSTRUCTOR'S DIARY

PURPOSE: To collect data for evaluation of the Instructional Television study to be conducted by San Jose State College in the spring semester, it is important for all instructors involved in the study to keep records. To save time and energy, the instruments for collecting data should be:

1. Standardized
2. Complete
3. Simple

To meet the above three specifications, an "Instructor's Diary" is suggested.

PROBLEM: To meet some of the problems instructors may have in keeping a week by week, and day by day, account of their particular areas of concern in the Instructional Television study, it is suggested that the "Diary" should:

1. Be small enough to carry with other class materials; for this reason a regular Academy Class Register was converted into a diary
2. Provide a system for concise reporting; all information can be kept in this type register with the addition of a few pages
3. Provide a system for complete day by day, and week by week recording
4. Provide a simple system of recording to save instructor time and effort
5. Provide instructors an opportunity for subjective and objective reporting of operational, academic, and personal opinion areas

ELEMENTS OF THE DIARY

1. The diary will be identified by number. At the end of the semester the diaries will be collected and evaluations will be made by persons assigned to the task. Therefore no names should appear on the diaries.
2. Simple direction for keeping the diary will be listed on page 2.
3. Course objectives will be supplied as a check list for the instructor.
4. The course number will appear in the upper left hand corner of page 4.
5. The title of the course follows the course number.
6—7. The beginning and ending date of an observation period should be noted.

8. The Room number where the instructor and students observe should be recorded.

9. The number of receivers in the room will be noted. This information may be important in evaluating the number of receivers necessary for optimum viewing.

10. Student names. This information is important only in follow-up studies, and to keep a record of viewing attendance.

11. The type of credential for which each student is working. With this information we can evaluate the number of different credential candidates in the program.

12. The school the student would be assigned to for observation if he were not taking observation by CCTV. This is important to evaluate saving in student time, and transportation cost. This item can be supplied by the responsible person (Miss Owen or Dr. Hughes) and need not be of special concern to the individual instructors.

Note: These are not actual scheduling problems; for example, Miss Owen might say: "I would assign 8 students to observe 2 days at Lowell" - Eight students would arbitrarily be assigned to Lowell - on the record. An estimate of savings could be made for these students.

13. Drop-outs. If a student should drop out of the program it would be interesting to find out why: If taking observation by TV was the reason, it may be an important factor in final evaluation.

14. Observation periods. For purposes of evaluating the number of hours of TV observation each instructor conducted, it is important to record these periods. This might influence scheduling later sessions, or it might indicate the amount of viewing time an instructor felt was sufficient to achieve the objectives of his course.

15. Other uses. This gives an indication of how the instructors are using the equipment other than for observation.

16. Conference record. This is an important record for evaluating staff time spent in preparation, etc. for TV teaching or observation.

17. Preparation and Planning for Special CCTV Presentations. This is devoted to the instructors using CCTV for specially planned teaching demonstrations.

18. Time, Personnel, and cost of instruction can be evaluated from this record.

19. Questionnaire - Weekly. These will be check-sheet type questionnaires. If these are completed at the end of each week - instructor preference, attitudes, etc., can be evaluated as the program progresses.

20. Comments, Subjective Evaluations, Recommendations, Observations: These pages are provided for unstructured evaluations and notes the instructor may want to make.

Use of the data collected:

1. Materials for report to the State Department of Education
2. Justification for released time for TV Instructors
3. Justification for increased research funds
4. Justification for possible future compensation to the Demonstration (Resident) Teachers
5. Justification for improvement in Instructional TV Programming and scheduling

APPENDIX I

C A L E N D A R - INSTRUCTIONAL TV PROJECT - 1954 - 1958

1954 First use of CCTV at Agnews Hospital by SJSC.

Proposal for first TV equipment at SJSC. Eleven Departments express interest. May 14, 1954.

1955 Continuation of Agnews Project (July 28, 1954 - March 15, 1955).

Authorization for purchase of 2 TV Industrial Vidicon Camera Chains, with both studio viewfinders and remote operation accessories, for "Pilot Study" at SJSC (January 18, 1955)..."to determine the values of CCTV as an aid to instruction; and for study of TV in Radio-Drama Curriculum."

1955-1956 Pilot Experiments Conducted. Teacher Education Study Reported: "TV and Teacher Education" by T. D. Clemens, Dept. 30, 1956. 50 pps.

Further reports on other studies in: "Instructional Television: Background and Potential at San Jose State College" by G. L. Martin, September 1956. 49 pp.

See also, report of Committee on Closed Circuit TV in the State Colleges for 1956. State Dept. of Educ.

1956 December 12. State Committee on Closed Circuit TV in the State Colleges recommends SJSC submit a budget for equipment and personnel for further pilot studies of TV in college teaching. Departments of Finance and Education represented at the meeting and concur.

December 20. Budget prepared and forwarded to Sacramento.

December 20. Board of Education, San José Unified School District, approves cooperation in Teacher Education Project by use of public school facilities.

1957 May. Appropriation approved for 1957-1958 Budget by augmentation of SJSC budget by $116,369.00 (Capital Outlay: $88,218 Operating: $4,643; Personnel: $23,470).

1957 January. First serious conferences with PT and T on Distribution System.

July - October. Preparation of detailed specifications for requisitions leading to purchasing.. Conferences with suppliers.

MEETINGS WITH MANUFACTURERS OF TV EQUIPMENT

December. Approximately fifty meetings were held between January 1957 and 1958 with representatives and engineers of ten companies manufacturing TV systems, receivers, distribution systems, special lights, and accessories, and with the representatives of the Pacific Telephone Company. From one to six members of the ITV and A/V Staffs participated in each meeting; the man hours cannot be computed. Meetings ranged from one hour or less to full days on both week and week-end days.

Examples of meeting content: exploration with representatives of three distribution system companies and the Pacific Telephone Company of the off-campus and on-campus system requirements, first to obtain sufficient design specifications for budget requirements, and again to case the projects for final bid estimates; exploration with manufacturers' representatives of all types of vidicon TV camera systems and the various accessory combinations, and costs, with analysis of types of systems to meet varying college requirements; design discussions with manufacturers of custom and standard TV receivers.

October 3. Estimate Co509 submitted for basic TV camera systems and associated equipment. Subsequently - and promptly - processed by Division of Purchasing. Five bidders listed.

November 25. Meeting in Sacramento to Evaluate Bids. (Division of Purchasing, Department of Education, and San Jose State College Represented)

December 16. Meeting in San Francisco with PT&T to analyze final contract provisions for off-campus distribution system. (Finance-Communications, Department of Education, and SJSC represented)

1958 January 2. Basic TV Equipment received from KIN TEL, the successful bidder, by Bekins Van.

January 3 - February 14. Mobile Unit Trailer installation complete and tested by A/V Services. Tested with PT&T March 3-6, 1958, from Horace Mann.

January 16. First use of TV equipment in Engineering TV Project: Demonstration Lecture by CCTV.

January 30 - February 14. Campus Distribution System installed. (Spencer-Kennedy Laboratories, successful bidder) Separate bid specifications had been processed in December for this system.

February 19. First signal from Horace Mann school via PT&T lines.

March 10. Daily Transmission from schools started from Horace Mann School.

May 29. End of daily transmission from public schools to College.

SPECIAL DEMONSTRATION PROGRAMS OR LECTURES

The College ITV staff presented or participated in a number of programs important to the record; the included programs start with January 1957. Programs previous to that date are included in other ITV reports of the College.

January 16-19, 1957:	At invitation of Los Angeles State College and Long Beach State College, Martin and Lewis (SJ) and Lombard (Fresno) presented reports of ITV progress and research.
March 14-June 13, 1957	The College presented a 13 week series over KNTV-TV (Channel 11) in San Jose in cooperation with the P.T.A. - "You and Your Teenager."
March 16, 1957	KOVR-TV - Stockton - Panel on ITV (Lewis, Ch.)
March 24, 1957	KCRA-TV, Sacramento. 30 minute program on TV Therapy. Martin, et al. (Coop by Sacramento State College)
April 6, 1957	State Convention of Industrial Arts Teachers at San Jose. Demonstration of TV Teaching, 2 - 1 hour presentations. ITV Staff, Speech and Drama Staff, and College and San Jose Unified School District Staff.
April 12, 1957	Occupational Therapy Demonstration. Campus - 1 hour. CCTV
April 13, 1957	Lecture: AAUW Luncheon - (Martin and Lewis)
April 15, 1957	KQED-TV:TV Therapy Program (Martin and Quirmbach)
May 15, 1947	PDK - Lecture on ITV (Lewis)
June 24 - Aug. 2	WORKSHOP COURSE IN ITV - 6 Week Summer Session (Martin - Lewis)
July 15 - 19, 1957	CONFERENCE ON ITV (142 attending) sponsored by the College in cooperation with the California State Department of Education and the American Association of Colleges for Teacher Education.
October 11, 1957	Demonstration Program, California School Boards Association Convention, Long Beach. 1½ hours. Produced by ITV staff, San Jose, with cooperation of LA County Schools, LA area school districts, 4 manufacturers of equipment, and others.

January 6, 1958	Demonstration for Librarianship Course, 1 hour, CCTV.
February 20, 1958	Illustrated Lecture for Journalism Class (Westfall, Martin, Lewis)
February 25, 1958	Illustrated Lecture for Sociology Class (Martin, Lewis)
March 20, 1958	Illustrated Lecture, Education 170 Class (Martin)
April 21, 1958	Industrial Relations Institute - Management Conference. CCTV Program, directed by Westfall.
May 22, 1958	Night repeat of "Metallurgy as a Career" Engineering Program - CCTV - for guest night. 1 hour. (Westfall)

APPENDIX M - 1

INSTRUCTIONS FOR RATING SCALE

RATING BLANK FOR INSTRUCTIONAL TELEVISION USED IN CONNECTION WITH_____
(name of course)

The following is a list of course objectives set up as the ones most likely to be facilitated through the use of closed circuit instructional television viewing. From your present knowledge of the way in which instructional television will be used in this course, you are to rate how efficiently you believe that each of these objectives will be facilitated through television.

After each objective you will find the numbers 1, 2, 3, 4, and 5. However, do not mark your answers on this paper; use the answer sheet provided. The meaning of these numbers and the directions for marking your papers are as follows:

If you think that the closed circuit viewing method will be highly superior to other methods in meeting this objective mark the _____1 (highly superior).

If you think that the closed circuit viewing method will be superior to other methods in meeting this objective mark the _____2 (superior).

If you think that the closed circuit viewing method will be the same as other methods in meeting this objective mark the _____3 (the same as).

If you think that the closed circuit viewing method will be inferior to other methods in meeting this objective mark the _____4 (inferior).

If you think that the closed circuit viewing method will be highly inferior to other methods in meeting this objective mark the _____5 (highly inferior).

Do not mark on this paper, use the answer sheet provided.

APPENDIX N - 2

POST TEST

INSTRUCTIONS FOR RATING SCALE

RATING BLANK FOR INSTRUCTIONAL TELEVISION USED IN CONNECTION

WITH_____
(Name of Course)

The following is a list of course objectives set up as the ones most likely to be facilitated through the use of closed circuit instructional television viewing. From your experience with the way in which instructional television was used in this course, you are to rate how efficiently you believe that each of these objectives was facilitated through television.

After each objective you will find the numbers 1, 2, 3, 4, and 5. However, do not mark your answers on this paper; use the answer sheet provided. The meaning of these numbers and the directions for marking your papers are as follows:

If you think that the closed circuit viewing method was highly superior to other methods in meeting this objective mark the ———— 1 (highly superior).

If you think that the closed circuit viewing method was superior to other methods in meeting this objective mark the ———— 2 (superior).

If you think that the closed circuit viewing method was the same as other methods in meeting this objective mark the ———— 3 (the same as).

If you think that the closed circuit viewing method was inferior to other methods in meeting this objective mark the ———— 4 (inferior).

If you think that the closed circuit viewing method was highly inferior to other methods in meeting this objective mark the ———— 5 (highly inferior).

Do not mark on this paper; use the answer sheet provided.

APPENDIX N

SUPPLEMENT TO THE APPENDIX

TELEVISION PROJECT REPORT, STUDY REPORT NUMBER 1,
San Jose State College, San Jose 14, California
1957 - 1958

FACSIMILE

CONTENTS

OBSERVATION BY TELEVISION

Packets of Background Information for College Instructors and College Students Observing Public School Classes, prepared by Public School Teachers

Horace Mann Elementary School Instructors and Students	A
Selma Olinder Elementary School Instructors	B
Students	C
Roosevelt Junior High Schools Instructors	D
Students	E
San Jose Senior High School Instructors and Students	F

DIRECT TEACHING BY TELEVISION

Student Comments on Engineering 1	G

NOTE: COPIES OF THIS SUPPLEMENT ARE ON FILE IN THE STATE DEPARTMENT OF EDUCATION, DIVISION OF STATE COLLEGES AND TEACHER EDUCATION, AND AT SAN JOSE STATE COLLEGE.

TELEVISION PROJECT REPORT
FROM
SAN JOSE STATE COLLEGE
SAN JOSE, CALIFORNIA

INSTRUCTIONAL CLOSED CIRCUIT TELEVISION

INSTALLATION

OPERATION

POTENTIAL

PICTORIAL REPORT
NUMBER 1

September 1958

SAN JOSE STATE COLLEGE
SAN JOSE 14, CALIFORNIA

September 30, 1959

MEMORANDUM

TO: John T. Wahlquist, President

VIA: Fred F. Harcleroad, Dean of the College

FROM: Richard B. Lewis, Head, Division of Audio-Visual Services

SUBJECT: Instructional Television Project Reports, 1957-1959; Forwarded

ENCLOSURES: (1) STUDY REPORT NUMBER 1

(2) PICTORIAL REPORT NUMBER 1

1. Enclosure (1) discusses in detail the work on the ITV Project during 1957-1959, and is supplemented by loose-leaf pages from Enclosure (2). Enclosure (2) is prepared separately to permit circulation of the technical, organizational, and operational aspects of the Project about which we receive many questions.

2. The Study Report makes clear that the first year of the Project has been devoted to procurement and installation of instructional television facilities, and to a relatively brief period of instructional planning and operation in accordance with the objectives of the Project. However, considerable experience and the data gathered about the problems and requirements of initiating a program, suggest trends, and implications for future efforts.

3. Full recognition and appreciation must be given to the operation of the State, to the Departments of the College, to the San Jose Unified School District, and to the many commercial organizations that have participated in the various work of planning, installing, and operating the current phase of the Instructional Television Project; credit details are recorded in full in the Study Report. Special appreciation is extended to RCA Vic., a Division of Radio Electronics, San Diego, for assistance in preparing the Pictorial Report and printed portions of the Study Report.

4. The Staff of the Division of Audio-Visual Services prepared the reports; the Study Report has been read by members of the College Instructional Television Evaluation Committee and the Departmental Coordinators for the Project. On September 30, 1959, the reports will be presented to the Committee on Instructional Television of the State Colleges.

California State Department of Education

Roy E. Simpson, Superintendent of Public Instruction and Director of Education

J. Burton Vasche, Associate Superintendent of Public Instruction and Chief of the Division of State Colleges and Teacher Education

Don Youngreen, Assistant Chief of the Division of State Colleges and Teacher Education

James B. Enochs, Specialist in State College Curricula, Division of State Colleges and Teacher Education (to July 1958)

Dorothy M. Knoell, Consultant in the Division of State Colleges and Teacher Education

Arthur D. Browne, Consultant in the Division of State Colleges and Teacher Education

Committee on Instructional Television in the State Colleges, Stephen L. Walker, Chairman (Sacramento State College). (A Curriculum Study Committee of the Division of State Colleges and Teacher Education of the State Department of Education, composed of representatives of the Department and of each California State College.)

San Jose State College

John T. Wahlquist, President
William J. Duncl, Vice President
Fred F. Harcleroad, Dean of the College

Division of Education
William G. Sweeney, Head
Department of Elementary Education
Lowell G. Keith, Head
Department of Secondary Education
G. W. Ford, Head

Participating Division and Departments
Division of Science and Occupations
C. Richard Purdy, Dean
Department of Health and Hygiene
Marston Girard, Head
Department of Journalism
Dwight Bentel, Head
Division of Humanities and the Arts
Dudley T. Moorhead, Dean
Department of Psychology
Brent Clark, Head
Department of Speech and Drama
Harold C. Crain, Head
Division of Engineering
Norman O. Gunderson, Head
Division of Audio-Visual Services
Richard B. Lewis, Head
Thomas D. Clemens, Coordinator of Faculty Services
Arnold D. Kemp, Coordinator of Materials Preparation Services
Ray A. Lillie, Coordinator of Technical Services
John W. Westhall, Coordinator of Television Services
Caitlin Lee Martin, Supervisor of Closed Circuit Television Projects

Cooperating:
San Jose Unified School District
Rudolf P. Crandall, Superintendent
Curtis Davis, Assistant Superintendent
and Principals and Staff of Bowers, Hoover and Selma Chrisler Elementary Schools, Roosevelt Junior High School, and San Jose High School

San Jose State College
Instructional Television Evaluation Committee (1957-1959)

Engineering
James H. Andrews*
Teacher Education
Elementary Department
Clay S. Anthony*
W. D. Miller
J. W. Richmond (Fall Semester)
Secondary Department
John A. Hart*
John C. Woodward
Psychology
Gene Walker*
Edward W. Minium
James J. Jaker
Health and Hygiene
Catherine Walker*
Audio-Visual Services
Richard B. Lewis
Instructional TV Staff
Caitlin Lee Martin
John W. Westhall
Journalism
Gordon Croft*
(and a Committee Member 1957-58)

Starred (*) members were also ITV Departmental Coordinators

Reports prepared by Caitlin Lee Martin, assisted by David O. Cram, with the aid of members of the Staff of the Division of Audio-Visual Services, the ITV Evaluation Committee, and the Departmental Coordinators, September 30, 1959.

INSTRUCTIONAL TELEVISION PICTORIAL REPORT

Introduction

San Jose State College, with several years of experience with closed circuit television, has been assigned responsibility for an extensive and continuing project of developmental utilization of TV both in the teacher education program and in other instructional areas.

The California State Department of Education, Division of State Colleges and Teacher Education, through a Curriculum Study Committee—the Committee on Instructional Television in the State Colleges—has given general direction and coordination to the exploratory work with television at San Jose and at other Colleges in the State College System. Broad objectives of the several projects are:

- To explore the use of television in a wide variety of college instructional situations.
- To determine when, where, and under what conditions television can make contributions to the improvement of college instruction.
- To determine the techniques, personnel requirements, and costs of utilizing television in a variety of instructional applications.
- To explore the technical and operational problems involved in the use of television in instruction.
- To assist other colleges in planning for, using, and evaluating television for college instruction.

Pictorial Report Number 1 is presented to review the first year of operation of the current Instructional Television Project at San Jose State College, with special emphasis upon the equipment and facilities purchased and installed by the State, and upon the scope of the project during the first two months of operation. The total period of actual operation has precluded extensive study results, but a full report of information derived from three months of operation has been prepared for the College Administration and the Committee on Instructional Television in the State Colleges. The Study Report is not complete as this Pictorial Report goes to press, but copies will be available at the College and the State Department of Education in October, 1958.

STATISTICAL SUMMARY

ITV PROJECT—SAN JOSE STATE COLLEGE—1957-1959

May 1957—ITV Budget approved by the California State Legislature.

June-November 1957—Preparation of Final Specifications for Equipment, Facilities, and Installations.

September 1957-June 1959—ITV Evaluation Committee Activities: Project Planning and Evaluation.

November-December 1957—Purchasing of Equipment and Installations.

January-March 1959—Installation and Test of Equipment.

January 19, 1959—First Instructional Presentation—Direct Teaching.

March 23, 1959—First Observation by TV in the Public Schools.

General Statistics—January-June 1959

Total College Students Involved as Viewers	1402
Total Other Viewers, excluding official visitors	210
Total College Instructors Using ITV	26
Total College Courses Involved	20
Departments Involved	6
College Instructors Teaching on Television	7
Guest Teachers	5
Studio-type Direct Teaching Presentations	19
Presentations by Students	9
Public Service and Orientation Presentations	7
Students in Radio-Television Courses (Speech and Drama) Participating in Television Presentations	50
Meetings of the College ITV Evaluation Committee (ITV Man Hours)	80
*Installation of Equipment (Mobile Unit)**	
Television Technicians (2)—Man Hours	600
Audio-Visual Technicians (2)—Man Hours	560
Total	910

*Note: Does not include administration or supervision time. Studio facilities were installed on an intermittent schedule, as funds permitted.

Operating Statistics

Observation by Television (College and Public Schools)	
ITV Transmitting Time (March 23-May 29)	297 hours
Time Equipment Operating (including warm-up and testing)	502 hours
Man Hours for Operating Technicians (2)	960 hours
College Faculty Members Utilizing TV Observation	20
Public School Teachers Appearing in Television Observation Presentations	12
College Students Observing by TV	788
Direct Teaching by Television	
Lesson Hours Telecast	19
College Faculty Members Teaching by TV	7
Guest Teachers Presenting TV Lessons	5
College Students Viewing Lessons	670
Special Demonstrations and Student Presentations	
Number of Special Demonstrations	7
Number of Participants Appearing on TV	50
Number of Students and Other Viewers	480

Note: Rehearsal, set-up, and take-down time not included in any figure above.

Visitors to the ITV Project [illegible]

The Closed Circuit Television System at San Jose State College

After many months of research, consultation, and planning, detailed specifications were prepared for a television system installation that would permit the widest possible use of the medium: the system was to be flexible, components were to be capable of operation in wide variety of situations and combinations, and expansion of the system was to be possible; the system was to be suitable for broadcasting over the air, when required.

The State Department of Finance, Division of Purchasing, called for bids on elements of the system in November and December 1957; delivery and installation continued through January and February 1958.

The photographs following describe the equipment and facilities, as background for later description of the Instructional Television Project at San Jose State College.

On January 3, 1958, 38 days after opening of bids, KFMB-TV, of San Diego, California, delivered the television camera equipment units to San Jose State College.

Studio Equipment

Studio television equipment, including three viewfinder type cameras, and a film/slide chain, provides facilities for a variety of teaching applications. The picture series following suggests various combinations of equipment possible, and describes the components.

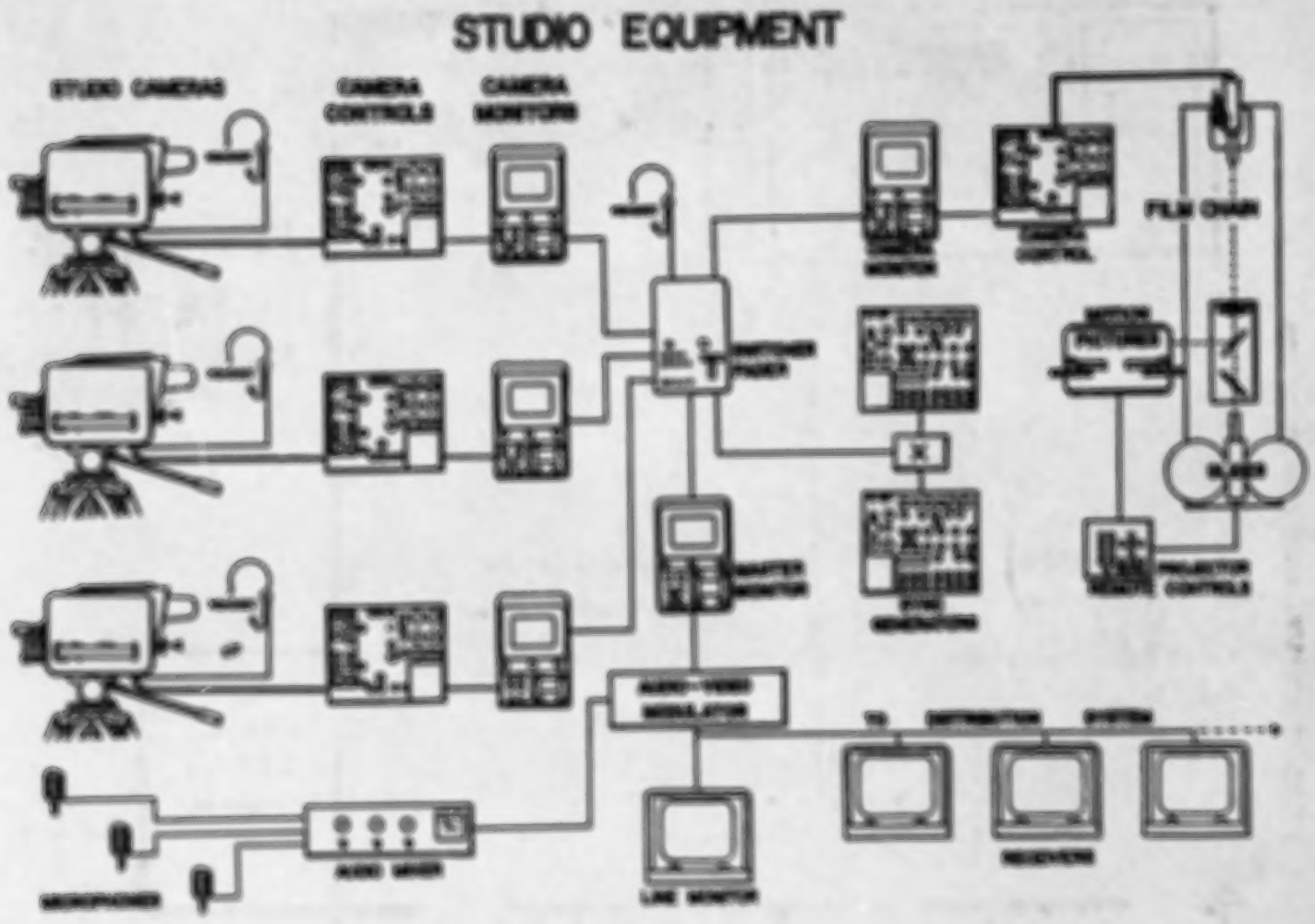
A group of components for remote use: studio camera, controls and control monitor in field case for mobility, video monitor, and TV receiver. With this system, picture only are transmitted at Video Frequencies, with a band width of 5mc; the receiver is designed to operate on these frequencies as well as on Radio Frequencies (RF).

This combination, with the two units, top center, will combine picture and sound for distribution at Radio Frequencies suitable for reception on a standard receiver.

When two studio cameras are used, the controls are housed in a console constructed at the College, and associated units are in a cabinet rack. As shown, the system provides for mixing picture and sound for RF distribution on the college TV distribution system: the audio mixer is on top of the console, the audio-video modulator (which combines picture and sound for distribution) is the top unit in the rack. This equipment group is used in the studio, or moved to laboratories or classrooms.

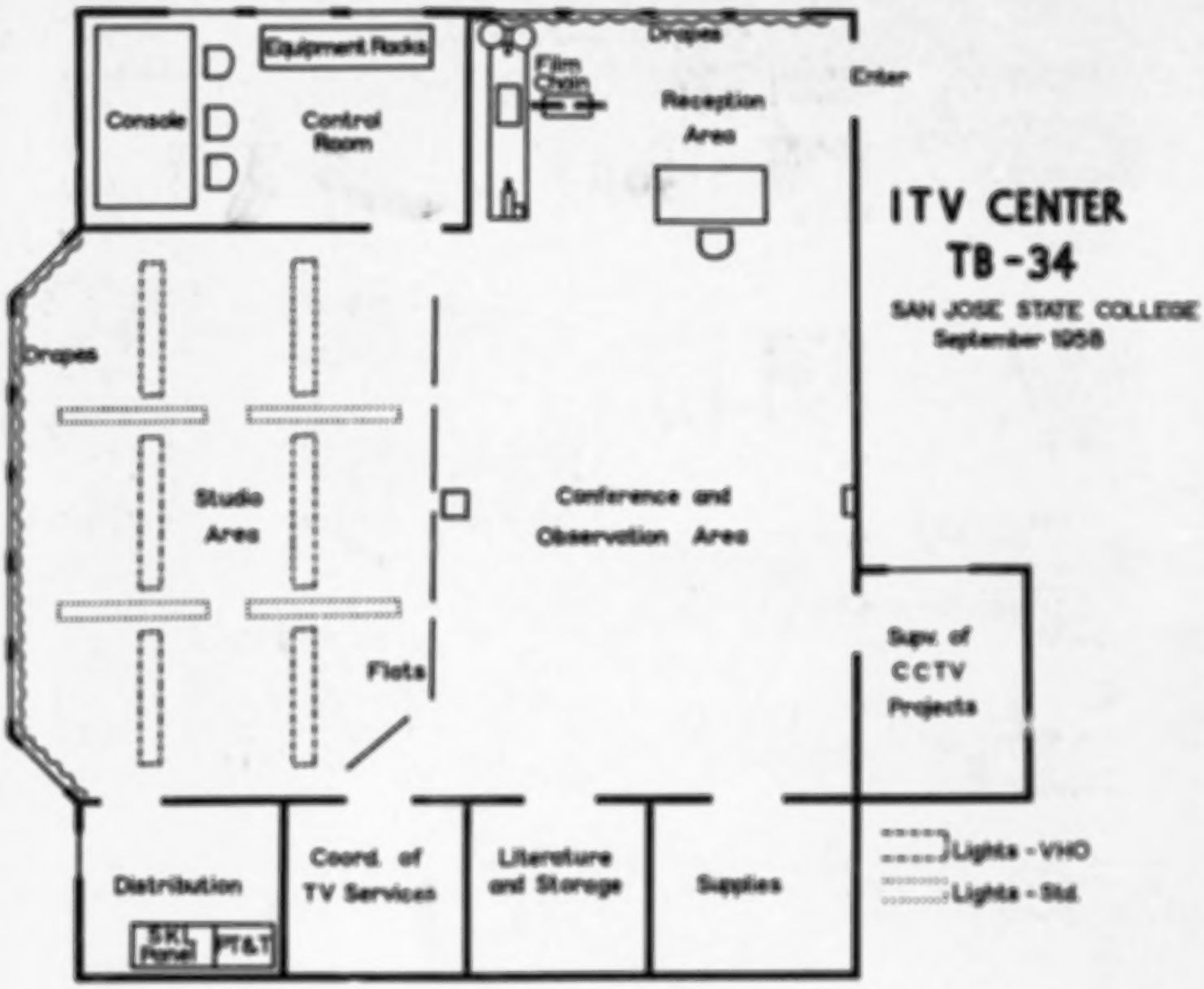
The "studio" console contains standard RCA TEL components, including the switcher-fader (lower right) used to select the camera picture to be transmitted. The unit on the top right is the "Master Monitor" for evaluating the outgoing signal; each of the other two monitors serves one of the cameras.

The film chain system includes the camera system, multiplexer, one Bell and Howell 16mm magnetic/optical sound projector, and a Spindler-Sauppé dual-drum 2 x 2 slide projector with capacity for 48 slides, a TV Camera mount, remote controls for both projectors, and mounts for the units. The console for the control units was constructed by the Audio-Visual Service Center staff.



By a chart lay-out, the Studio Equipment as a total system can be studied. All components shown are part of the San Jose State College system. The audio mixer is only a symbolic example, as two and four-channel units are available and may be used singly or in combination.

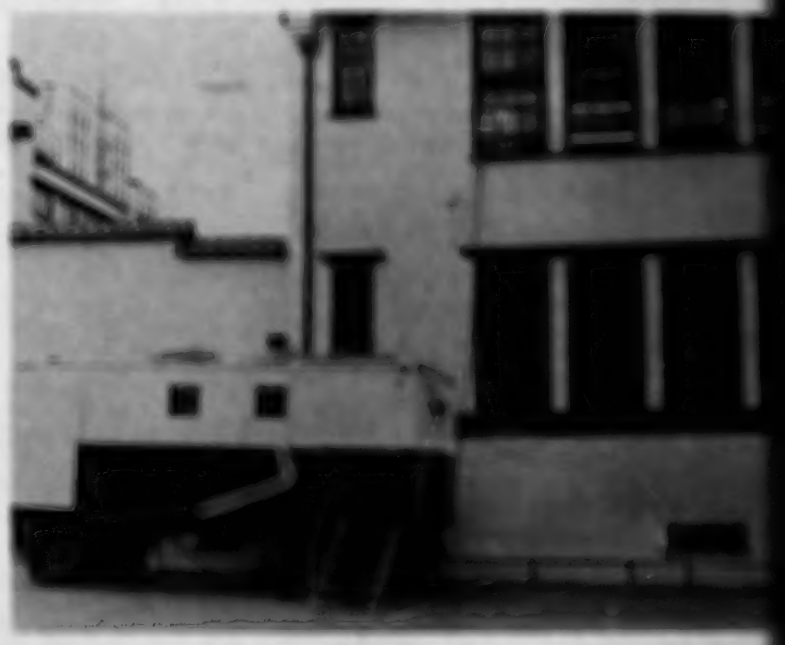
The three studio cameras, with tripods, dollies, and pan-tilt heads. Instructional Television Center staff members, left to right, Glenn Stewart, Saravio Garza, Gaither Lee Martin, John W. Westfall.



The Instructional Television Center, a department in the Division of Audio-Visual Services at San Jose State College, has facilities in the Tower Building, Room 34. Studio, master control for the distribution system, production control room, conference facilities, and offices are provided.

Mobile Unit and Field Equipment

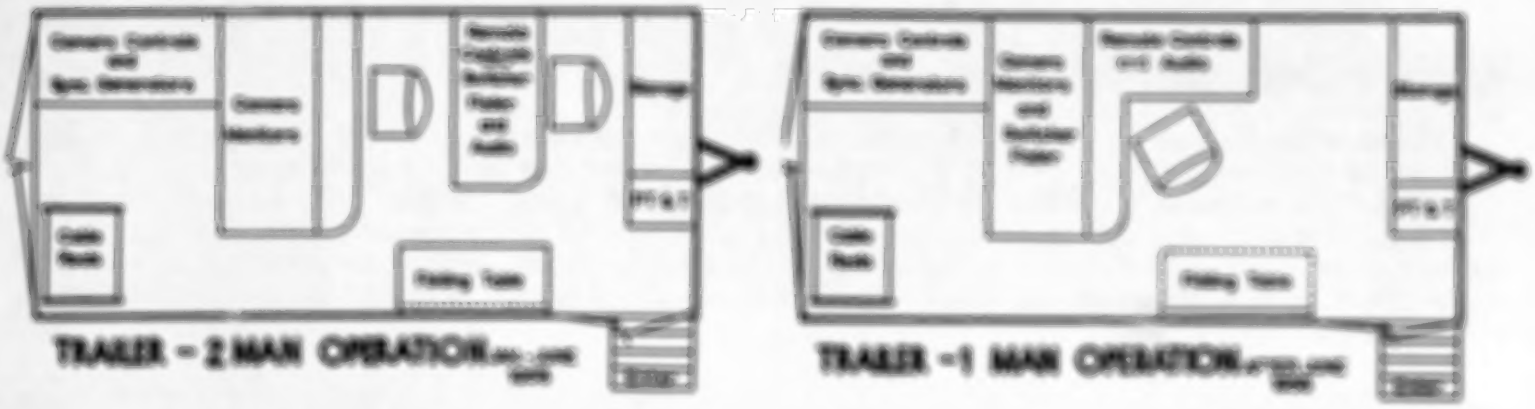
Since television pick up and transmission from four public schools to the College is a major activity in the Instructional Television Project, special equipment and facilities were selected and installed. The pictures indicate that the Mobile Unit is not unlike "remote" TV facilities used in broadcast work. However, remotely controlled cameras are normally used in public school classrooms; these cameras can also be replaced by studio type units, or used in combination with them as teaching requirements dictate. Flexibility of equipment use keynoted selection of equipment and design of the installation.



A war surplus radar trailer unit was reconditioned by the College, and television system components, intercommunication panels, and cables were installed. Here the trailer is operating at the Horace Horn Elementary School in San Jose. Cables rising to the second floor classroom include those for cameras, remote controls for all camera functions, and microphones.

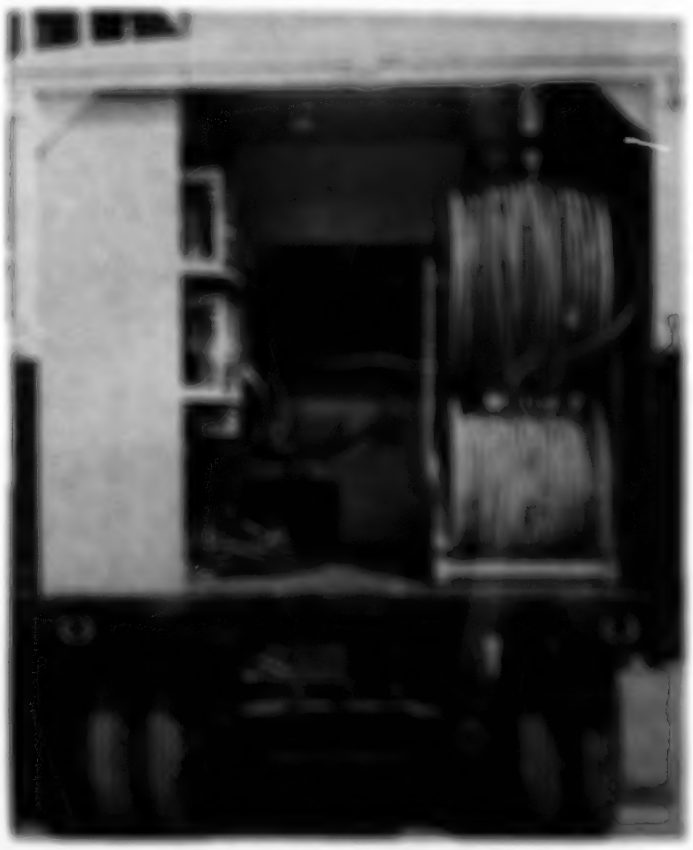
Interior of the trailer at the TV engineer's position, showing camera monitors. The large monitors, above, are for the convenience of the camera operator who sits behind the engineer, and for guests. Power supplies, camera controls and synchronizing generators are in the back of the trailer.

The camera control operator, sitting at a console behind the engineer, can pan and tilt each camera, focus each lens, change lens apertures, and regulate the zoom function on the Zoomar lenses; he also operates the audio mixer for the microphones. Directions from the college classrooms are received on the intercommunication phone.



After three months of operation, the TV technicians discovered that a rearrangement of the controls would permit one operator to handle all functions for most program transmissions. The charts show the general arrangement of the trailer as first installed, and as modified for 1958-1959 use.

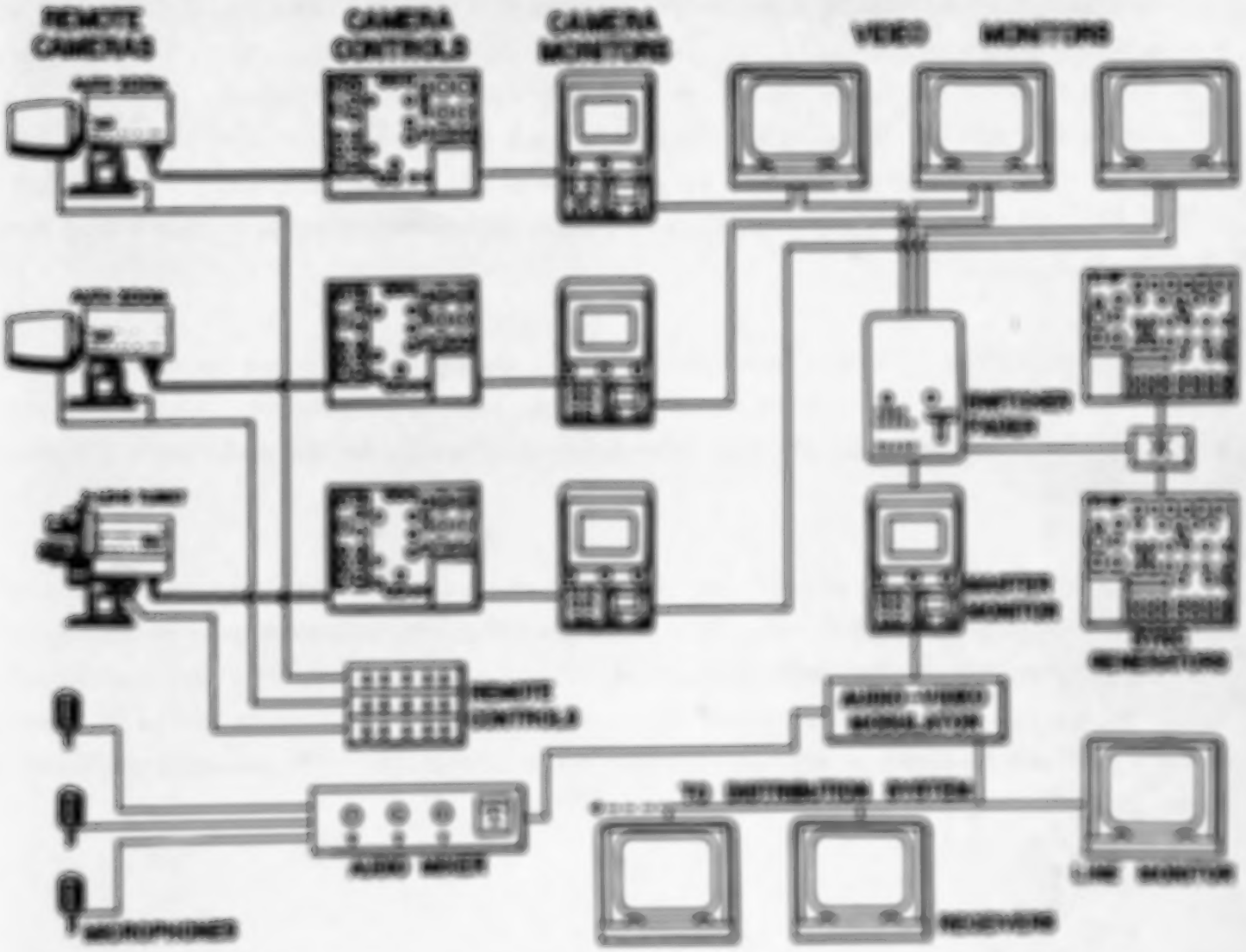
Interior of the trailer as rearranged for one-man or two-man operation to serve differing transmission requirements. The asbestos covered, fold-down bench, lower left corner, is used for minor repair work.



In the rear portion of the trailer, camera control units, power supplies, synchronizing generators, and cable reels are housed.

Near the front entry, a storage cabinet contains shock-mounted shelf for cameras, bins for microphones, test equipment, and tools. Receiver for line and test use, and air conditioner, above. Telephone Company modulator and terminal rack, right. Direct telephone line to the Pacific Telephone Company service office is provided.

MOBILE UNIT EQUIPMENT



Study of the Mobile Unit Equipment Chart indicates the components used in the trailer. All units are in field cases to permit removing them from the trailer for on-campus or other location operation. Studio cameras can be substituted for the remote cameras as required.

The remote control cameras, mounting pan-and-tilt motors, are small and light in weight. The three-lens turret can accommodate three lenses of different focal lengths, and each can be selected, focused, and controlled remotely, including the iris aperture.

The GBH 102 camera with Varble-Glass Auto-Zoom lens also operates in all functions by remote control.

All camera and accessory equipment shown in the above pictures was included in the original package supplied by RCA VIDEO. It should be reported that the systems are "broadcast" units, with synchronizing generators supplying pulses and with generator interlocks. Thus, the system is acceptable for over-the-air transmission both in quality and kind of components. Further, units in the system will accept color camera components when appropriate and when obtained. This is evidence of the policy recommended by the State Committee on Instructional Television: that investment should be made in equipment that will meet future requirements without loss of investment or obsolescence.

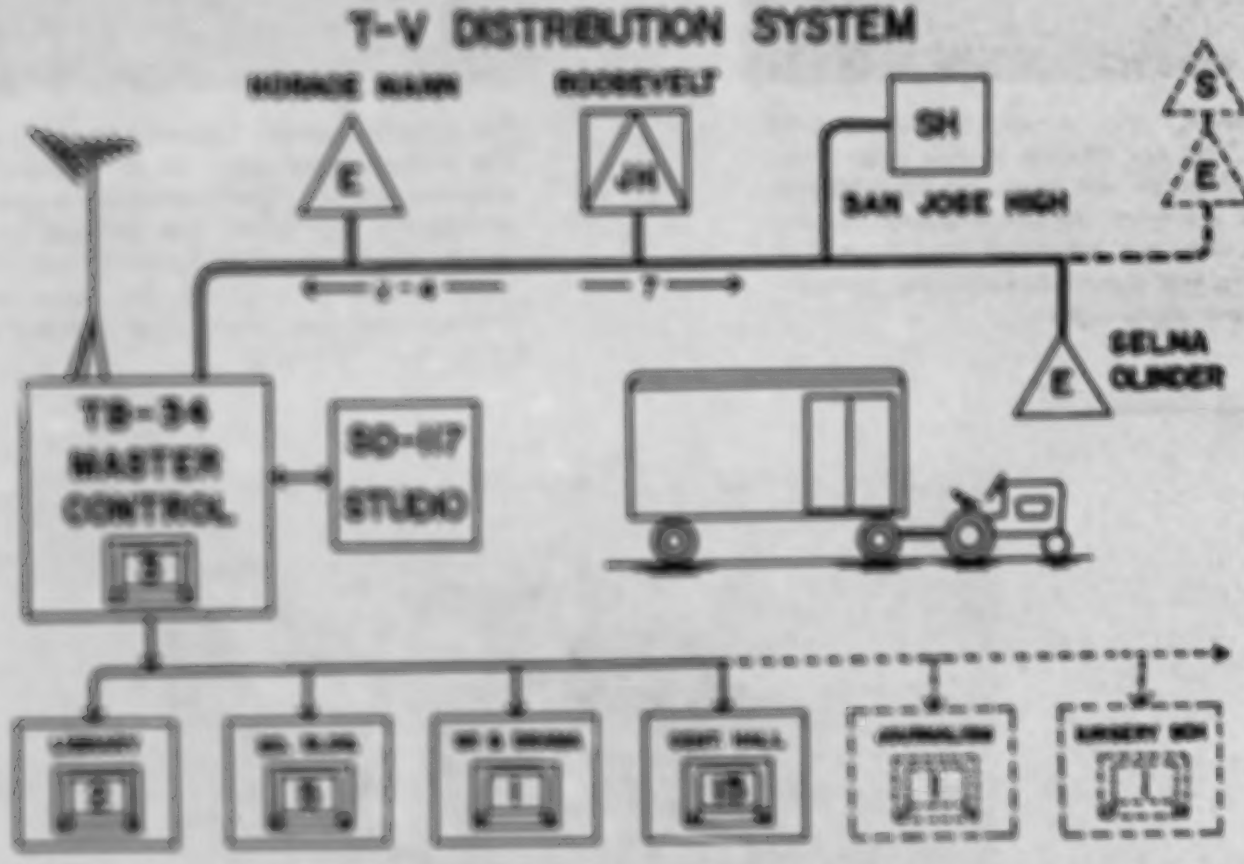
It is important to note, also, that Vidicon camera systems were selected for their satisfactory quality, their durability, their relative ease of operation—even by inexperienced persons, their portability, their relatively low cost, and their demonstrated suitability for the applications of television in instruction.

Early experimental work at the College was conducted using industrial Vidicon television camera systems which proved satisfactory. It is understood that numerous companies are now developing industrial equipment that, with minimal addition of equipment, can meet broadcast specifications; this suggests that economical closed circuit television installations can be used at the inception of a program and extension of television service can be undertaken with minimum additional expense and with no loss in initial investment.

The Distribution Systems

All elements of the distribution system are designed for maximum flexibility for college instructional applications. Spencer-Kennedy Laboratories in Boston, Massachusetts, bid successfully on the on-campus, State-owned distribution system and designed, installed, and tested it. The Pacific Telephone and Telegraph Company designed, installed, and tested the off-campus system which is operated by the Company under contract with the State. The schematic chart below shows the combined systems.

Across the top of the chart is the Telephone Company installation which connects the College with four schools in the San Jose Unified School District. Termination of the Telephone cable is at each school in a plugging box to which a coaxial line from the trailer is attached; on the College campus, termination is in a panel in Master Control. This system has capacity for three channels from the schools to the College and three channels from College to the schools. At present two channels incoming and one outgoing are activated, with modulators in the trailer for VHF channels 5 and 6; the outgoing channel modulator on campus is for VHF channel 7. A separate intercommunication telephone channel is provided under tariff rates: phone taps are at each school to serve the College mobile trailer, and in each classroom of the College where TV tap points are installed. Headsets are supplied, each with a hand operated switch to control transmission from the phone unit, but the listen circuit is always in operation for continuous reception at all points on the line. This system can be extended when required.



The on-campus distribution system provides 27 tap points: one in Master Control, one in the Speech and Drama Building TV Studio, one in the Audio-Visual Service Center Workshop, and 24 in classrooms in the College. This, too, is a two-way system—using two parallel cables. Signals can be received from the Telephone Company lines of the off-campus system and passed on to each tap point on the College; closed circuit TV signals can be put into the system at any tap point on campus and received at other tap points; signals from all local television stations can be received via the antenna on the roof above Master Control and passed to all tap points on the system; any signals from the campus system can be passed to the off-campus system. This system, too, is capable of extension as required. Two additional tap points are being considered for installation for 1958–1959 in the Recreation Building and in the area of the campus Nursery School; this requires only the addition of cable and an amplifier. Signals on the distribution systems are at Radio Frequency and may be received on standard domestic receivers; signal quality is equal to transmission by broadcasting.

Cable used in the on-campus system is both RG11U, left, and RG59U coaxial cable. The larger size cable with lower loss characteristics is used wherever conduit capacity permits. These cables are paralleled by a three-wire audio line (not shown) for local intercommunication and sound signals.

The Spencer-Kennedy Laboratories fabricated this master control panel for the campus distribution system. Three broadband amplifiers are used at this point. The patching system permits distribution of all signals from different signal sources as required. The panel incorporates necessary attenuating switches and connections for testing.

"Tap" points in classrooms include the TV terminal box, left, the cable connector shown is for incoming signals to a receiver, the small terminated jack is for the pick-up system when cameras are used in a classroom. Right, the Pacific Telephone and Telegraph Company intercommunication system outlet box and handphones as installed at each tap point.

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Television Receivers

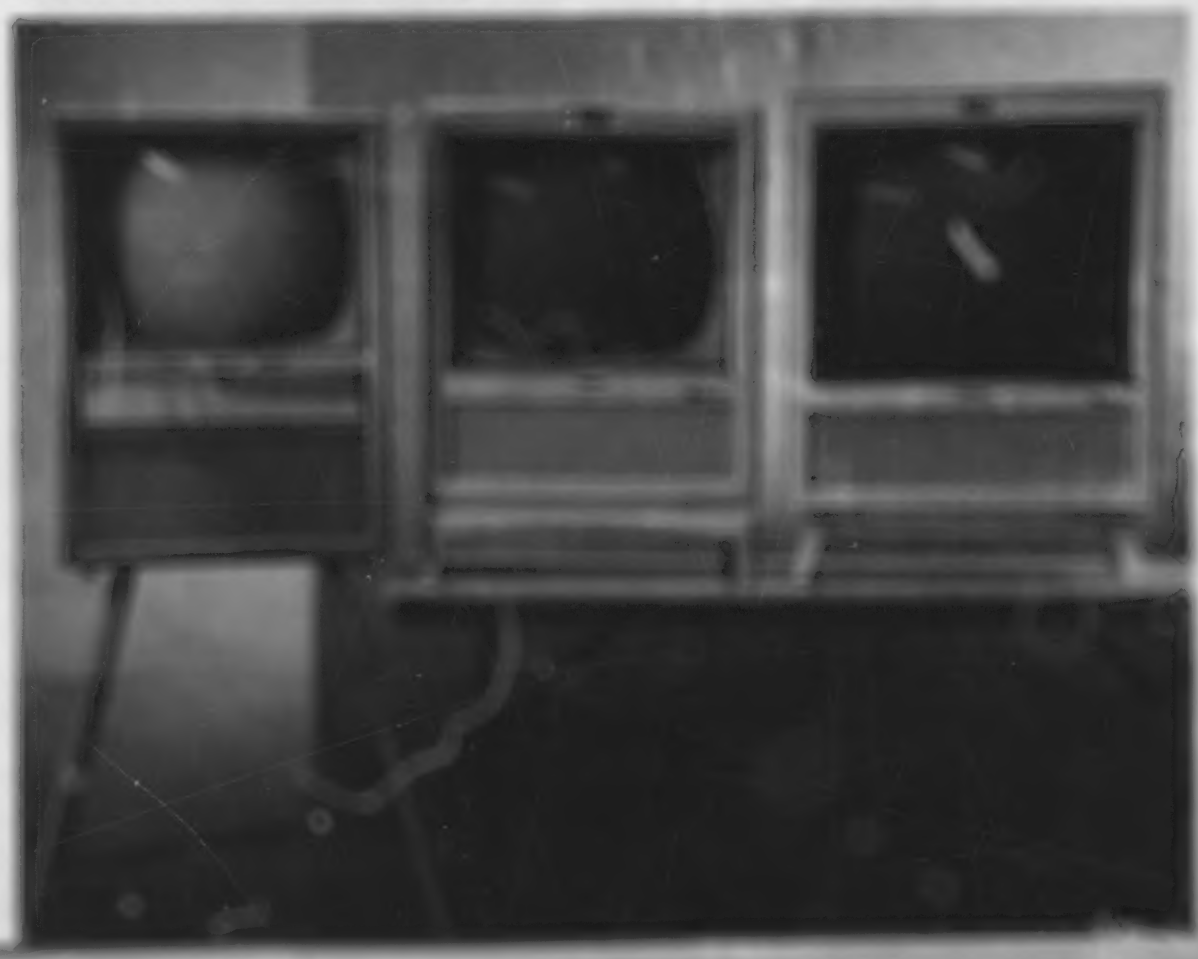
With receivers, as well as with other equipment used in the San Jose State College television installation, every effort has been made to provide multi-use units suitable for a variety of technical and instructional arrangements. Receivers were desired that would accept programs from commercial and educational stations in the area, that would receive the closed circuit programs from the public schools and from points on the college campus, and that would serve as video monitors, providing pictures directly from the camera systems.

To support the receiver-monitor shown top Hewlett did the metal tools by cabinet. Easy panel on it' cooled to top shelf can be cut to any desired height inches. By top on by cut to cannot height to test to it to display Note: With the control by it become a desktop console with panel height above right to that set.

Receivers designed by (UNREAD, UNCHARACTERIZED) Electron Fullerton to specifications supplied by the College have special provisions to make them suitable to a variety of experimental applications in teaching with television. Even at rooms to quality of performance including studio. Channels permit receiving stations directly from the TV camera systems or video frequencies transmitted a to the with the television video used as a monitor. It a coaxial (UHF) the input cable is in use. The audio system is a 10 watt high fidelity unit and an 8 inch loud speaker is used in a table cabinet, designed and built a hobby fund panel to provided to control set. The entire cabinet of the 21" picture model is of wood to appearance and to safety.

Indicative of its suitability for exploratory use, the CONRAC unit inputs are for 300 ohms (external) or for 72 ohms (RF signals from the distribution system), and video inputs. The latter are duplicated for "loop through" connection of several sets. The audio system can be fed by an external signal, when the set is used as a monitor for VIDEO distribution, or the speaker can be used for sound signal from an external amplifier. The lower section is the speaker baffle area, and two of the four Johnson Leg Brackets are seen.

Here the CONRAC receiver-monitor can be compared with 19 and 24-inch domestic receivers of high quality. The College saw the latter in some situations where RF signals only are required, and deems the larger units with CONRAC units to meet some viewing requirements.



Utilizing Television in College Instruction

The Teacher Observation Program

In a College without a demonstration school, and, in this period of growing enrollments, even with a demonstration school, there is an increasing problem of providing opportunities for pre-service teachers to observe expert teachers in school classrooms. San Jose State College utilized the co-operative assistance of public schools in the area to provide observation experiences. Especially convenient are those within the San Jose Unified School District, but many students travel as far as fifty miles to study real school classes in action. Further, there are disadvantages in having many different students observing in many different schools who then have had no common experience upon which to base questions and discussions. And, in many courses observation would at times be extremely invaluable, but public school facilities, travel time, and class schedules prohibit school visits. Of course, it is generally agreed that there is no substitute for actual classroom observation and participation. But, to determine to what extent television can assist in the observation program is one of the major explorations at San Jose State College.

The typical observation group is seeing public observation in a college such as this. The lecture, in the Audio-Visual Education classroom, is shown by TV camera operators in the public art of Home Arts Elementary School across town from the college. The group of students is composed from several sections of the same [illegible] observation and discussion. What has an observation group of students such as this been determined by the study. Questions and discussion here as centralized will be based by being shown [illegible] observation with the children.

An actual photograph of a receiver at the College with Mrs. Mabel Wilson, Sixth Grade Teacher at Horace Mann Elementary School in the San Jose Unified School District, teaching her class.

Again at the College, this group in Secondary School Curriculum, Dr. John A. Barr, Professor of Education, selects views from the same classroom. Here Secondary Credential Candidates can become oriented to activities in elementary school classrooms and discuss the implications of what they see for their future high school teaching. This group, without television, has almost no opportunity for this experience. And, this viewing is simultaneous with that of the elementary groups in other classrooms.

Here another elementary classroom at Horace Mann School is being observed. The teacher, Mrs. Marie Brown, as do the other teachers, cooperates with the College by providing daily and weekly lesson plans and activity schedules for the information and guidance of the observing college classes.

At the elementary school, directed by the college instructors on the campus, the technicians in the trailer select, focus, and compose scenes to reveal the significant activities being discussed by the college students. Seating charts for each class assist the college instructors and the technicians to select views.

At Roosevelt Junior High School, Mr. W. J. Hilmes, teacher of mathematics, and his class are being televised. One zoom lens camera (left), a three-lens turret camera (to right), and another zoom lens camera (out of the picture to left) provide a variety of perspectives on the class. Supplementary lights, described elsewhere, are visible, as are two of the microphones for audio pick-up.

To a special instructional service, the counseling staff of Roosevelt Junior High School is, from left, Miss Elizabeth Ann Hay Bassett, consultant, as discussion presents a point for secondary education classes on the college campus. The after-school program was transmitted from a classroom used for televised observation. Two-way audio communication made possible a question and answer period between the panel and the campus classes. Top (left to right) camera is for talk. The panel members, left to right, are Mrs. Lois Haggard, Mr. Richard Bassett, Mr. Ray Bassett, Mr. Lloyd Burbee, and Mrs. Susan Stubbs.

At the College, the Roosevelt Junior High School Team of Chris is seen on the monitor in Room 210 of the Library where Dr. Lawrence Pogue, Assistant Professor of Education and his class listen to and watch the panel. Mrs. Rankin discusses the various types of student personnel records which she discussed.

The following two photographs are of a room in Monroe Main Elementary School showing supplementary lights, two GBS/TEL remote cameras with Zoomar lenses, and the 3-tube turret GBS/TEL camera. Microphones hang from the lighting units over important activity areas.

This furniture arrangement, normal for the teacher in his room, is especially appropriate for television viewing. Front views, over-the-shoulder views, and general views of each classroom area can be transmitted.

Lighting units, seen in the classroom above, are available and are moved from school to school, although units are available to equip several rooms. The fixtures are supplied by the Berkey Photocraft Division of California. Gel Brute Softeners are in the middle of the unit to accommodate all fluorescent lamps. The lower bottom are removed from the standard industrial lighting fixture and are hooked to grounded heavy duty high voltage line from the fuse box on to the table. Behind the bottom-mounted fuse strip socket is the three-phase and standard fixture and to which at the left side is attached a six conductor cable. Ground Electric Company, Burlingame, California, assisted in planning the lighting units which are very high output lamps (VHO).

Direct Teaching With Television

[illegible] experimentary projects in direct teaching by closed circuit television have been undertaken, and more are planned. Programs in Engineering, Health and Hygiene, and Teacher Education are to be continued, and others are planned for Psychology, Natural Science, Journalism, Industrial Arts, Occupational Therapy, and Librarianship. The picture sequence below is of an Engineering lecture-demonstration by Mr. James H. Andrews, Associate Professor of Engineering, for over 200 students in a combined group from Engineering courses I and III.

A remotely controlled lens on the RCA TK-11 camera provides both general and close views as Mr. Andrews, in the laboratory, describes a device he will later demonstrate.

In this program, the remote control was used as a central focus. Mr. Andrews is seen on the desk monitor; the two monitors, upper left, above what the viewing students are seeing.

In the Engineering Auditorium, on five monitors (two 21" and one 10"), the students observe and hear the program. Questions can be asked the lecturer by an intercommunication circuit.

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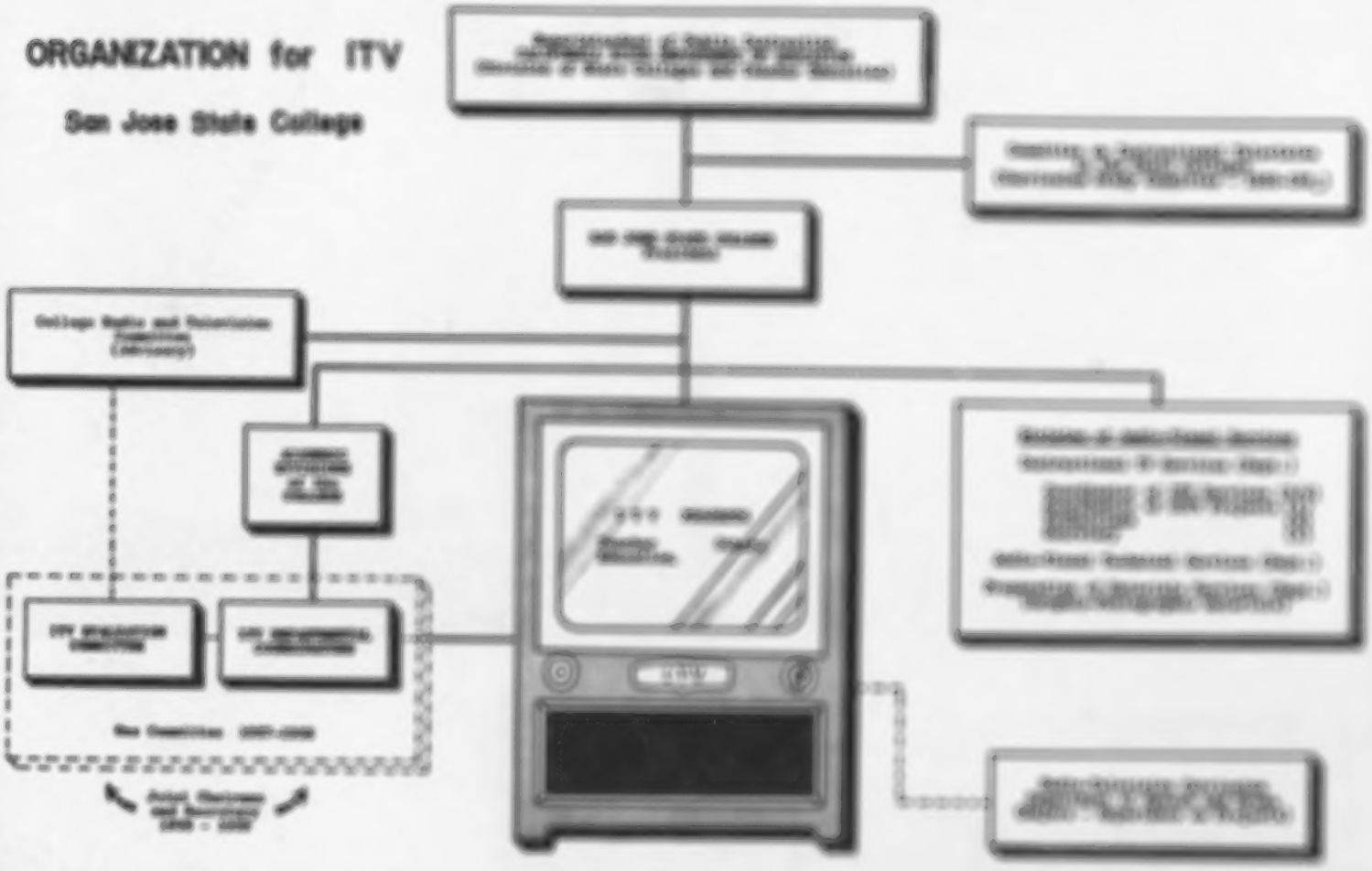
Another direct teaching project for Health and Hygiene classes presented a guest Dr. Donald Wiatt, Pathologist for Santa Clara County Hospital, assisted by his technician, Mrs. Winifred Smith. In a brief demonstration, using complicated hospital equipment, Dr. Wiatt gave detailed information on tests for cancer. Here he is observing classes in remote rooms. Close-up views were especially valuable in his presentation.

In the classroom, students could ask questions ... and receive immediate answers from the visiting lecturer.

ORGANIZATION for ITV

San Jose State College



Organization for Instructional Television

Organization for the program in Instructional Television at San Jose State College and for the projects conducted has been established as shown on the accompanying chart. The Department of Instructional Television Service is the Division of Audio-Visual Service is directly responsible to the Dean of the College, and through him to the President. The Department of ITV Service has operational responsibility for the program.

Representatives of academic divisions of the College, serving as an Evaluation Committee, have general responsibility for determining the provisions, content, and scope of the instructive aspects of the Instructional Television program. This Committee includes faculty members assigned as departmental coordinators for the television activities conducted by their departments. The Evaluation Committee has recommended a continuation of its services for the year 1959-1960, naming a Committee of Departmental Coordinators who have special operational problems and a separate Evaluation Committee which will concentrate on evaluation of the Instructional Television Project. Coordination between the two groups will be insured through a chairman and a secretary serving both committees.

The College is responsible to the California State Department of Education through a Committee on Instructional Television in the State Colleges, a Curriculum Study Committee in the Division of State Colleges and Teacher Education. This group, with representatives of all the State Colleges and the State Department of Education participating, serves to coordinate and evaluate various instructional television planning programs in the several State Colleges.

The College Radio and Television Committee, above on the chart, is advisory to the President on matters relating especially to programs presented by the College to the public viewed by broadcasting. It also nominates members for the Evaluation Committee for Instructional Television.

Students in the Radio-Television Curriculum in the Department of Speech and Drama are given opportunity to have experience on instructional television programs when appropriate and when available.

See above on the chart for staff for personnel in the continuing Instructional Television Project, in the San Jose State College Division of Audio-Visual Instruction. The Junior College Board of Education, Mr. Fisher, the principal, counselors, and staff members of the local public schools cooperating in the Teacher Education Television Project have given exceptional service to make the experiment proper possible. The San Jose Board of Education authorized the cooperative effort with the State College on December 21, 1959.

Special mention is made of the very cooperative attitudes and services of television equipment distributors and manufacturers, electronic equipment, and of the Pacific Telephone and Telegraph Company, all of whom have assisted the San Jose State College for a number of years in planning for the Instructional Television Project.

Background for the Present Report

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